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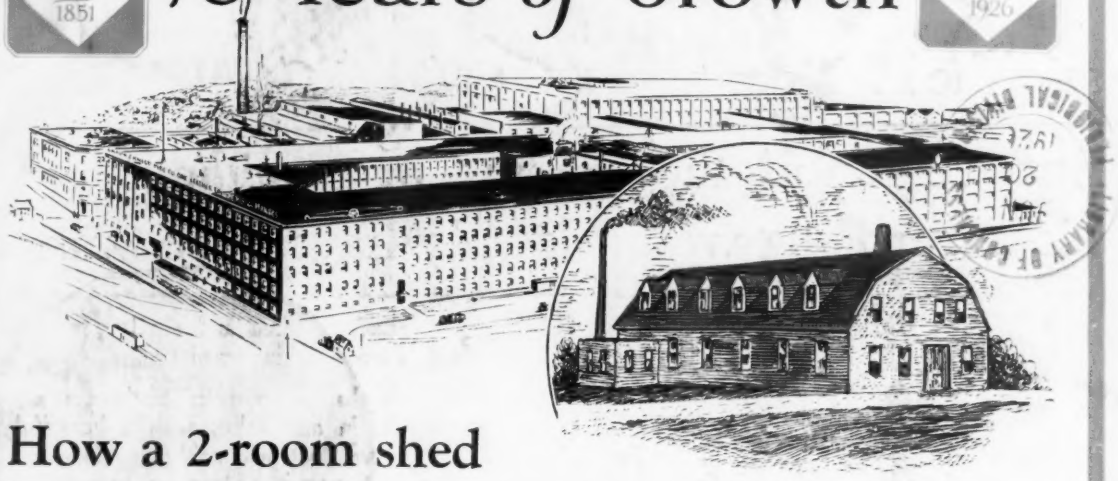
1851 — 1926



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DIAMOND JUBILEE

DIAMOND JUBILEE

Table of Contents, Page 55. Buyers' Index, Page 188. Advertisers' Index, Page 200.

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CONTENTS

Among COTTON'S Readers 53
With the Publishers— 57

EDITORIAL—

Cooperation and Competition 745
Science and the Future 745
A Pending Agricultural Revival 745
Foreign Debt Problem Unsettled 746
Roads that Lead to Prosperity 746

GENERAL AND TECHNICAL—

Presenting a Pioneer 747
American Cotton Manufacturers Convene 749
"Research and the Southern Textile Association" .. 756
Warp Sizing 759
Scientific Trends with a Textile Slant 761
Eastern North Carolina Division of the Southern Textile Association Meets 763
Cost Accounting for Cotton Manufacturers 768
Texas Mill Men Meet at Mexia 771
Towels and Toweling 777
What the Southern Mills Are Doing 780
The New England Mill Situation 782
Cotton Comment 784
Notes About Men You Know or Know About 788
An Old Timer Says— 791

HOW OTHER MEN MANAGE—

What Makes the Roving Lighter? 795
Wants a Potato Starch Formula 795
Experience in Slashing Warps 795
Asks Information on Brownell Twisters 798
Overcoming Pin Holes in Duck 798
The Latsch Long Draft System 799
Roving Twist and the Weather 799
Slack Selvage on Warper Beams 799
An Adjustable Comber Trumpet 801
Combers and Combing 801
The Cause of Smutty Bobbins 813
An Improved Method for Adjusting Harness 814
Using Hank Clocks to Pay for Spinning 814
Kirschner Beaters and Speeds 817
Cork Rolls and Over-Drafting 817
Excessive Breakage of Ends in Spinning 819
Vacuum Versus Roller Stripping 823
Stripping Motor-Driven Cards 824

KNITTING SECTION—

"Ladderproofing" Hosiery Fabrics 827
Ribber Needles Break at the Tips 834
Overcoming Fuzzy Rayon Stripes on Hose Made on a Banner Machine 834
A Cutting-Up Problem on Underwear 837
Range of Yarns and Fabrics for Certain Gauge Machines 837
Uses Glass Jars for Storing Parts 838
Long Loops on the Mock Seamer 838
Teamwork and the Lack of It 839
Keeping a Record of Parts Used 841
Chattanooga Yarn Association Entertains Knitters at Enjoyable Affair 843
The Yarn Market 844
The Knit Goods Market 847
Erwin, Tennessee, a Progressive City 853
Those Who Will Work Will Succeed at Charlotte .. 855
Among the Knitting Mills 858

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June, Nineteen-Twenty-Six

Cooperation and Competition.

In speaking before a group of business men, an official in the Department of Commerce at Washington called attention to a fact whose truth cannot be too much stressed. It is this: Rifest competition is not between those who produce or fashion the same kind of things; it is between groups that have to do with different and seemingly unrelated things. Brick compete with lumber much more than brick compete with brick or lumber with lumber. There scarcely is an important commodity that cannot be supplanted by some other commodity. Cotton, because of its vastly superior volume, probably of all the staple commodities meets with the least competition from other things. Yet users of cotton goods are constantly choosing between them and wool and linen and rayon and even silk. These latter can supplant cotton in only a small percentage of total use. But the competition they give isn't all. Millions of persons constantly are choosing between textile materials of all kinds and—nothing. Only civilized people in cold climates have to wear clothes.

The outside competitive factor is much more important than that which operates within an industry. Thus producers of a kind or class of articles have much more in common than in conflict. They can deal best with that which is common to all only by cooperation, by pooling their information and dealing as a unit with their mutual problems. The outstanding development in modern business and industry is a growing tendency in that direction. It doesn't make for monopoly, as political radicals contend; for monopoly is possible in only limited degree. It makes far more for true public service.

Science and the Future.

In view of all that is heard about "science," the statement may seem strange but it is true that in recent years there has been a slowing up of genuine scientific research. This is largely because of concentration of energy on the application of scientific discoveries already made. This is peculiarly a period of "applied science," which isn't science at all but engineering. It is the link between science and practicalities. Its achievements constitute the true index of these times. In eagerness to make use of the already known, sight has been lost largely of the necessity of developing further basic knowledge for application in future to practicalities. "Pure science" lags as "applied science" advances. But that cannot go on forever; it is like living on one's capital.

Many problems of the future, those of raw materials as well as processes, must look to "pure science" for the bases of solutions. These invariably are by-products of academic studies of Nature's secrets. The United States has led the world in applying scientific principles. But most of those principles were discovered elsewhere. The time has come when more attention must be given in this country to the discovering of principles.

Secretary Herbert Hoover of the United States Department of Commerce is asking corporate industry to provide a fund of $20,000,000 for continuing researches in "pure science." It must be a contribution to the common good; for no promise of profitable return can be made to any single branch of industry. No one can forecast the nature of discoveries in "pure science" or what will come of them when made. That the fund will return big dividends not only to its providers but to all the public is a virtual certainty. In terms of money and expansion industry has profited most from the unravelings of Nature's secrets in the past. Is it not under an obligation to assist in making further unravelings—particularly when many of its problems must look in that direction for solution?

A Pending Agricultural Revival.

While "political" farmers demand that the Government "save" agriculture by providing doubtful and dangerous nostrums for what ails it, the farm problem quite probably is solving itself—as most like problems always do. Prophecy always is dangerous but there are many things which indicate that, nationally, a great revival in agriculture pends.

The situation is not unlike that which culminated in seeming disaster towards the end of the eighteen-nineties. The boom period following the Civil War and propelled beyond its time by the free land still available in the West brought about an over-extension of farming. Moreover, the boom nurtured a lot of shifty and faulty practices. Agriculture passed through a ten-year period of severe stress. Then when matters seemed hopeless, the situation changed, and, for a period of twenty years farming as a whole prospered as never before in this country. Then came the boom caused by the extra demand made by the World

War on American farming. This, rising to abnormal heights quickly, produced inordinate inflation. Farming lands sold at prices beyond their earning power even under the abnormal conditions during the latter part of the war. Thousands of farm owners moved into towns and cities, expecting to live leisurely on returns from land left in charge of hired hands and tenants. Then came the crash.

During the last five years farming has been getting back on normal and soundly economic bases. Millions of inflation covered by sales of land on credit has been wiped out by defaults. While mortgage debts have grown, the growth there has not been so great as in the realm of urban property which is apt to go through a somewhat similar deflation sooner or later. Experts say that there probably has been no increase in the national farm mortgage burden during the last two years.

The farming population has declined—the Department of Agriculture estimates that there was a net movement of nearly a half million people from farms to cities last year. That the "best" farming stock predominates among the new urbanites is doubtful. Those who are staying on the farms are in most part of that determined kind which doesn't run at the first sign of danger. They are adopting new practices, such as labor saving methods for meeting the labor shortage, and more intelligent marketing. The food needs of the cities have grown in proportion to the shifting of population from rural to urban districts and more. Most of these needs must be met by those who remain on the farms. The law of supply and demand soon may begin working in a way highly favorable to farming. It is not unlikely that within two or three years intelligent farmers will be laughing at the hocum which politicians and certain types of farm leaders now feed them—just as the farmers of the first decade of this century found laughable the hocum which they took seriously in the nineties.

Foreign Debt Problem Unsettled.

The agreement with France for the settlement of its war debt to this country brings virtually to an end, for the time being, negotiations concerning the big advances made by our Government to foreign countries during and following the war. All of the agreements comprise a writing off of big proportions of the loans as calculated from the terms on which they were made. Even if these agreements survive through the long periods covered by them we will recover only a little more than the principal of the loans. The continuing interest charge in most cases is negligible.

But the agreements will not operate until they expire by natural extinguishment. The problem has been only suspended. Virtually all the arrangements call for comparatively small payments during the next five and ten years. That with Great Britain alone fails to postpone the real reckoning—and yet that arrangement undoubtedly will be revised before many years pass. Italy paid down $5,000,000 and took away $95,000,000 because of bonds it was able able to float in this country after setting its debt to our Government. The French settlement has a similar achievement in view. This means a transference, and more, of those portions of the debts that are to be taken up within the next five and ten years.

Meantime, many things can happen. That there will be further revisions, after time has permitted opinion and facts concerning the problem to clarify, is certain. If all the debtor countries insist on paying us off in goods, as they have a perfect right to do, there may come about a complete reversal of opinion on the subject.

What most of them will pay us off with for at least sometime to come will be our own money—that is, with funds borrowed from private circles in this country. Most of them have settled, not out of eagerness to pay, but, rather, as a necessary preliminary to more borrowing.

Roads That Lead to Prosperity.

Within the past month the southern cotton manufacturing industry has been presented with two proposals which contain the possibilities of more or less radical reform in two major phases of textile operation. If followed through sanely and with discretionary effort, both seem to hold hope for means of solving some of the manufacturer's more important problems.

Both ideas were developed during the sessions of the American Cotton Manufacturers Association in Atlanta in May. William J. Vereen, the retiring president of the organization, initiated a proposel looking toward an improvement in merchandising the mill's product; the plan not seeking an abolishment of present methods of distribution, but rather a means of more intelligent and cooperative activity in the way of providing statistical and other information having a bearing upon textile distribution, which would serve as a guide for all factors concerned with marketing yarns and goods. Discussion on this subject evolved the suggestion of a Cotton Textile Institute, which along with other ideas, is receiving the consideration of a representative committee of the South's leading manufacturers.

Realization of the need for some kind of definite standards in the textile industry was aroused by F. Gordon Cobb, secretary-treasurer of the Southern Textile Association, in his address at one of the sessions. Mr. Cobb and his associates in the organization of operating executives are already in active cooperation with the recognized and authoritative bodies having to do with general standardization, and further movements on their part await the approval and cooperation of the industry.

Successful consummation of both plans, in fact, hinges largely upon two factors—an earnest, actively interested assistance from all manufacturers and other agencies affected; and the selection of the proper leadership in each case.

With a meeting of the Weaving Division, to be held at Anderson, S. C., on Friday, June 18th, the Southern Textile Association will continue its program of compiling information looking toward the establishment of textile standards.

At the last carding meeting, exhaustive data regarding practice within the mill as to settings, speeds, etc., were secured to form the basis of actual existing methods upon which to base standards. The meeting this month at Anderson, it is announced by General Chairman Cobb, will endeavor to arrive at what constitutes a first-class piece of cloth, a "second," etc., in the minds of the mill men present, by an examination and discussion of cloth samples to be inspected at the meeting.

History is that branch of knowledge by which we learn of the deeds of men and peoples. Beginning with childhood's first instruction, we learn of accomplishments in statecraft, art and science, industry and religion. History, by example and precedent, influences most impressively the actions of each succeeding generation; it is, after all, the account of the lives of people, sometimes of individual achievements, sometimes of more extensive movements of larger groups, bands, nations

In whatever form, to trace the development of any single element in history, current, recent or ancient, is to find absorbing interest and instruction. But of all record, that telling of the pioneers, in whatever sphere of activity, provides the most fruitful source of romantic adventure, of perseverance and ardor and zeal. Pioneers in religion, with willingness to sacrifice for a principle; pioneers in development and industry and exploration, who made this country possible; pioneers in every line of endeavor, have been familiar figures in our thought since earliest school-days.

Not so very long after the other settlers who perhaps are more familiar in American history, there located in the peaceful State of Pennsylvania a band known as the Moravians. Zealously devout to a beautiful religion, these people were as well pioneers of highest order. And some time later we find them establishing, in Eastern North Carolina, their Wachovia, with Salem as the center of their life. Stern practicality, aggressiveness, energy and resourcefulness—traits of pioneering people of all time—were abundant in this band of people.

Without following any especial continuity of time and events, except as this story is affected, we find at a little town north of Salem a manufacturing establishment operated by a man of English descent named Patterson. General Stoneman and his men, in the ravages of the Civil War, destroyed the little mill, and its owner removed to Salem, setting up in that place a mercantile business. There he met, wooed and wed a daughter of the Moravian settlement. Some years afterward, this story has its logical beginning, for it was on October 26th, 1867, that Samuel Finley Patterson, a child of this union, and recently elected president of the American Cotton Manufacturers' Association, was born—one of several sons who are at the present outstanding figures in the industrial, financial and educational life of this country.

There is perhaps not a better known nor more universally popular figure in the textile industry today than Sam Patterson. His success as a textile executive is too generally familiar to require much elaboration here. That the honor recently given by his fellow mill-men in placing him in the highest position within their power as an organization, was never more deservedly received nor confidently bestowed is the unanimous opinion of his colleagues.

But there are certain fundamental characteristics in this man which present a colorful subject for description. The endeavor to present these, and to record a brief story of his career, is the purpose of this narrative.

Coming up through boyhood as a typical lad, the age of 11 found young Patterson a student at Bingham School, then located at Mebane, N. C. Leaving here after three years, he worked in various capacities in the Arista and Washington Mills at Winston-Salem, N. C., acquiring a basic understanding of textile processes.

When Sam was 19 years old, the owners of the mills of the Odell Manufacturing Co., at Concord, N. C., needing a superintendent, selected him for the place. He made a mark here as a practical managing executive, because several years later, he was called to the Thistle Mills, at Ilchester, Maryland, where he remained for five years, relinquishing the position of president of a very successful mill, in about 1896 when he took up what may be considered his life-work. It was at this time that he returned to his native state of North Carolina, and began the development at Roanoke Rapids.

Here it was that the pioneer instinct, inherited from

his Moravian ancestry, found opportunity for ample expression. Roanoke Rapids, the town, located on the Roanoke River in Eastern North Carolina near the Virginia line, presented an outlook more discouraging than inviting for the establishment of manufacturing; the only attraction at that time being the source of prime power available. For it was an isolated section—the first installation of machinery being hauled by wagon from Roanoke Junction, for example—away from manufacturing centers, and with no manufacturing precedent save a small knitting mill which had never prospered abundantly.

But a trait of the true pioneer is that obstacles of whatever nature daunt not the spirit to conquer. Patterson was secured by the local owners of the property for a specific purpose—to build and operate successfully a cotton mill. He did it. If this story were not restricted to the scope of a personal sketch, an industrial development of engaging romance and enchantment could be unfolded by telling the story of how Roanoke Rapids and its mill villages have grown to an outstanding mill community. But only those features emphasizing the fundamental characteristics of the man responsible will be mentioned.

The original site of Roanoke Rapids offered little of an attractive nature for Patterson and his associates. But pioneers create conditions amenable to their needs, they blaze trails and clear forests—and success in the undertaking is evident today in the form of successful, efficient mills and ideal village conditions. The school Patterson built for the children of the town is used all over the country as a model in construction and design for institutions of an educational character.

When the first Roanoke mill was built, the manufacture of napped goods, outing flannels, etc., was something theretofore unattempted in the South. But Patterson was and is a pioneer, and seeing the market for this product, began its manufacture, with an equipment of 320 looms. Today these mills have 1,742 looms on this same general line of product—and that statement reveals another Patterson characteristic which will be emphasized later.

Shortly after coming to Roanoke Rapids, Patterson, who through his earlier more intimate contact with the mechanical operation of the mill has always kept in close touch with manufacturing processes, manifested the creative penchant found in the character of those who, unrestrained by precedent, set out into the frontiers—whether those frontiers be geographic, scientific, religious or industrial. In the invention of a mechanism for combining the Jacquard motion and the automatic loom with the self-replenishing filling arrangement, he effected a great increase in production and decrease in labor in the manufacture of table damasks and similar materials.

Damask production in the South was unheard of up to that time, but Patterson began it, modestly, with only 50 looms embodying his invention, and today the mills of the Rosemary Manufacturing Company, the outgrowth of that small beginning, operate 1,300 looms on this product—representing the largest damask mills in the world.

The other characteristic illustrated in the specialization of these mills as to product is Patterson's belief in the importance of a man's learning to do a thing well, and sticking to it. While interested in new developments and trends, he feels that to specialize upon a good product, to make that product good enough to create a special demand for it, is the path of good business judgment and efficiency.

At the present time, Patterson is treasurer and general manager of the Roanoke Mills Company, and president and general manager of the Rosemary Manufacturing Company.

On March 18th, 1912, the Roanoke River overflowed its banks to the highest level within the memory of the oldest inhabitant. As a result, a potential malarial fever plague seemed to be town's destiny. Examination showed that there was 49.8 per cent possible infection. But Patterson got busy. Engaging General Gorgas, whose fame in effecting sanitary measures under similar circumstances in Porto Rico, Guam, and the Canal Zone, was international, in cooperation with the Government Health Department and his own physicians, Patterson wasn't long in eradicating the malarial pest, and a report in the fall of 1923 showed an infection of less than one-tenth of one per cent.

So much for the moment about Patterson's work insofar as his particular interests are concerned. In history we know of men as being great largely because of a few, or possibly only one or two, outstanding contributions to their generation. But those achievements do not come by accident, nor is it likely in any case, where a man receives preferment and recognition at the hands of his brethren, that other fundamental qualities, not visible at first, may be brought to light.

Sam Patterson, in addition to building Roanoke Rapids, has done another thing which, in the minds of his brother-manufacturers, brings him to the forefront as a leader among them. For years he has taken an especial interest in legislation—not seeking, however, political office for himself—and through unselfish labor, has rendered the industry an invaluable service in this direction. An outstanding accomplishment of his work along this line has been an effective activity in the correction of misinformation and supplying a lack of information with reference to true conditions in the southern cotton mill, in the minds of the laity.

For years he was chairman of the legislative committee of the Cotton Manufacturers' Association of North Carolina and when the southern manufacturers began a concerted campaign to present to the people of the country the actual facts with reference to the three so-called child labor amendments, Patterson was found a pioneer on the frontiers of this work, having this activity in charge.

Personally, Patterson is endowed with a physical bearing which but reflects the aggressiveness and energy of the man as manifested in his achievements. Standing over six feet in height, possessed of handsome features, he looks the part of the role he has assumed in the South's industrial life. A large part of his time now is given to the distribution of his fabrics, but until recently, subordinates invariably found him at work early, and for years, due no doubt to his earlier contact with the mill, he kept in immediate touch with affairs of a detailed nature. While relegating the closer work of manufacturing to associates, he even now keeps informed on the mechanical side of the mill; a habit the man mechanically-minded and trained never loses. His personal knowledge of processes and equipment is an aid in his work of an executive nature now, since it gives him an appreciation of the physical abilities of his plants.

While to the stranger Patterson presents a dignified impressiveness, upon acquaintance he is most affable and approachable. His friends consider him without equal

as a racounteur of stories, a human trait in which he finds enjoyment. Contact with his fellow-man, the association with his fellows is one of Patterson's pleasures.

In his thinking, Patterson has an inclination to clarity and shows an ability to reveal the simplicity of things which to other minds appear complicated—a capacity for thinking a thing through in simple terms, and of explaining it in like manner. Careful and conservative in his actions, he is as well thorough in the accomplishment of a task. Viewing a subject from all angles, his decisions are positive, and from subordinates he expects thoroughness and accuracy in the consummation of duties. His appreciation of possible difficulties, and his own understanding of the situation, temper his requirements with reason, so that while demanding fairness and honest effort, he exemplifies the true executive in that he is in no way a hard taskmaster.

An understanding of human nature, a closeness to it and to the common affairs of life and living, make up another attribute of Patterson's character. He has never taken on any special sport as a personal hobby, but even now, it is understood, he finds great enjoyment in going to a circus, a baseball game or similar attractions—and he admits it. Occasionally, he finds opportunity to enjoy a fishing expedition with close friends.

In addition to the positions already named, Patterson during the past year was president of the Cotton Manufacturers' Association of North Carolina he is a trustee of the North Carolina State College, and an active worker in behalf of the institution; vice-president of the First National Bank of Roanoke Rapids, and director of the Rosemary Bank and Trust Company. He is a life-member of the Congressional Club at Washington; and also holds membership in the Lambs Club in New York and the Biltmore-Forest Country Club at Asheville, N. C. In 1914 he married Miss Nancy W. Pearson and they have one child, Miss Mary Patterson. By a former marriage, Patterson has a son, F. F. Patterson, who is active in the management of the Rosemary Manufacturing Company, and a daughter, Mildred, who is now Mrs. Brice Beard of Salisbury.

This story of Samuel Finley Patterson was prepared, in accordance with our custom, as a biographical sketch and character study of the incoming president of the American Cotton Manufacturers Association. Mr. Patterson's sudden death on May 27th removes from the industry one of its great leaders, and causes the deepest personal loss to the legion of friends who knew him as a man. Feeling that this story presents his characteristics and accomplishments as those who knew him best will recognize, it is published as a chronicle of his achievements and a sincere tribute to his memory.—The Editors.

American Cotton Manufacturers Convene

Now that it's all over, the delegates who attended the annual convention of the American Cotton Manufacturers' Association in Atlanta on Tuesday and Wednesday, May 18th and 19th, are recalling with pleasant recollections a most enjoyable occasion as guests of the Gate City of the South.

Atlanta, whose reputation as a convention city is international, lived up to her previously established standards as a hostess with unsurpassed hospitality and the spirit engendered by the convention was one of thorough enjoyment and pleasure during the two-day visit.

The excellence of the entertainment was equalled in another way by the profitableness and timeliness of the convention program itself. The transactions at the meeting marked the way for developments which, properly consummated, should be resultful of much good for the industry.

A record crowd attended the convention, and included a number larger than usual of important figures from New York and the eastern textile manufacturing territory. These visitors were led officially by William B. MacColl, president of the National Association of Cotton Manufacturers, Robert Amory, past-president, John E. Rousamerie, president of the Association of Cotton Textile Merchants, of New York, and other outstanding figures in the distributing and manufacturing branches of the industry.

William J. Vereen, of Moultrie, Ga., president of the American Association, presided at the sessions, being ably assisted by Winston D. Adams, secretary-treasurer, of Charlotte, N. C.

The first session was brought to order on Tuesday morning by President Vereen in the Georgian ball-room of the Atlanta Biltmore Hotel, where the sessions were held. Following the invocation by Dr. Ben R. Lacy, pastor of the Central Presbyterian Church, Atlanta, Hon Clifford Walker, governor of Georgia, made the address of welcome, to which Cason J. Callaway, of LaGrange, responded in a brief and happy manner.

Appointment of committees was next announced by the president as follows: Nominations—W. D. Anderson, Macon, Ga., chairman; H. B. Jennings, Union, S. C.; and S. P. Cooper, Henderson, N. C. Resolutions—J. H. Separk, Gastonia, N. C., chairman; Alex Long, Rock Hill, S. C.; and H. L. Williams, Columbus, Ga.

President's Address.

President Vereen next read the annual address of the president, which follows. This paper contained much of pertinent import and value to the industry at the present time, departing from the usual form of report, and discussing more particularly phases of the industry of vital concern at the moment. Mr. Vereen said in part:

"If I correctly interpret the attitude of members of the cotton textile industry at this time, it is that of the gravest concern over the present condition of the industry. Without further introduction, therefore, I invite your attention to a few pertinent observations relating to the stabilization of our business.

"It is gratifying that the present attitude of the courts and the Washington administration, on a strictly nonpartisan basis, permits us at last to discuss matters of such vital interest from both a direct and a practical standpoint.

"At the outset I wish to emphasize that anything I may say is based upon the well-established principle of

supply and demand; that the supply should be equal to the full demand and without artificial stimulus or restrictive regulation. I by no means limit this principle to the output of our own particular mills, but I heartily favor its extension to other industries, particularly to the cotton-growing industry, which is our principal source of raw material.

"May I go a step further and add, if America, with her great productive capacity, is to maintain her present position and continue to move forward in giving to her citizenship prosperity and happiness exceeding that of any nation on the globe, it is most essential that all lines of industry—both agricultural and manufacturing—adjust their affairs so as to conform to this great law of supply and demand and that the various groups so associate themselves that they be thoroughly informed at all times as to the probable demand and arrange their production so as to fully meet it.

"As I analyze the situation, the textile industry today is suffering simply because it has sought to continue operations in violation of this great natural law and as I see it, such a condition will continue until we accord our operative policies in line with it. If such is the case, we must set ourselves to the task of balancing production to consumption and this requires knowledge, complete, accurate and up-to-date, as to what the demand is or will be and we must absolutely govern ourselves accordingly. Of course, there are other contributing factors—the improvement of our merchandising methods, the development of new markets, research and the utilization of more efficient devices in manufacturing to lower costs, etc., to which I shall later refer. But at the outset, as fundamental, we must balance production and know more of probable consumption demand. That knowledge is power is true in our textile situation today as it is in all others.

"Realizing this fact, your board of government last spring initiated steps in cooperation with the Association of Cotton Textile Merchants of New York to compile statistics as to production, stocks of goods on hand and unfilled orders against these stocks, for a limited range of staple fabrics, and I am gratified to report that splendid progress has been achieved.

"In connection with these plans, your president spent some ten days in New York early last summer, visiting among the commission merchants and discussing arrangements with them for this work. It was gratifying to note at the time such a splendid response, and the work then started has been carried on in splendid fashion.

"Manifestly, we had to begin in a limited way, with only a few standard constructions used, and at the start, the progress was necessarily slow but the groups reporting have been extended, and there is every indication that the work will continue to grow in value and service. I shall not go into more extended detail here except to urge that each and every one of you be present at the session this afternoon, when this vital phase of activity will be further considered.

MUST WORK IN GROUPS.

"One careful thought on this whole situation, when endeavoring to determine the productive possibilities, the actual production, the demand and various essential elements, will convince all that in this great cooperative effort, it is essential to work in groups: To illustrate: Except in a general way, there is very little in common between the denim manufacturer, the print cloth manufacturer, and the fine yarn spinner, and striking comparisons can be drawn through the entire industry. The denim manufacturers have their peculiar problems, and likewise each group manufacturing similar products. It is clearly apparent, without further discussion, that the only practical and feasible plan is to work in groups of similar products.

"The success of this undertaking is dependent on the measure of cooperation you accord it and, as one who has given a great deal of thought along with the members of your board of government, I cannot too strongly urge your active interest and support. As I see it, if we are to adjust our production to meet the consumptive needs of the public, we must know, in the language of the reputed 'Tar Heel' congressman, 'where we are at,' now and at all future times.

"In this connection and bearing directly on it, I am reminded of the wonderful manner in which the steel and other industries have worked out their problem. I am advised that the steel manufacturers, headed of course by the United States Steel Corporation, compile the most accurate, complete and up to date figures as to production, demand, and unfilled orders and that operations are absolutely in line with this data received.

"Of course, it is true that the problem with steel and other industries is more simple in effective handling than our own, because a half dozen or a dozen corporations control the vast bulk of the output, but what they have done points the way to what we can also do and the lesson as to the value of such information is striking and unmistakable.

IMPROVE MERCHANDISING METHODS.

"There can be no difference of opinion, gentlemen, as to the desirability, indeed the fundamental necessity of the stabilization of the textile industry. I have already referred to several features and phases of this problem, the due consideration and rightful handling of which will go far toward bringing about this much-to-be-desired result.

"There is another factor having a direct bearing on the situation to which I solicit your most earnest and intensive attention; I refer to the improvement of our merchandising methods, the betterment of our system of distribution, whereby our goods may be moved in a more economical and expeditious way from the sources of production—the mills—into the hands of the consumers—the public.

"I do not for one moment delude myself with the idea that I am qualified to offer you this morning a solution to this most difficult problem; it is one that has so many angles, so many ramifications, so many cross-currents and so many inter-related factors that while a plan might work in one case, that same plan might be wholly impracticable in another. There are, however, certain generic and fundamental factors underlying all situations, to which I shall briefly refer and which must be taken into account before any lasting or effective solution may be reached.

"Such vital changes have occurred within recent years in modern merchandising methods—chain store development, installment, hand-to-mouth buying, cooperative marketing and fashion's dictates—that we must revise, revamp and bring up to date our distribution agencies.

"No longer are marketing channels and methods cut and dried; they are being improved almost daily through competitive efforts. These channels cross, separate and merge again, taking diverse ways in different industries to meet

particular needs as they are being discovered. In the textile field, this has been particularly true.

"With such a multiplicity of fabrics being manufactured, with so many producing centers scattered north and south, and even into the middle west and far west, with such a variety of uses to which cotton goods are put and such a consumption field constantly broadening, this problem, to my mind, is one of outstanding interest. Here, in the south, we are as yet somewhat remote from the established centers of distribution, which makes it all the more imperative that we give increasing attention to this problem.

"However that may be, before going further, permit me to emphasize a few preliminary but salient factors. While I appreciate that I may thereby subject myself to the charge of triteness, still without due attention to these points, even the best distributing means will fail.

MUST KNOW COSTS.

"More of our manufacturers must know what their goods cost them. And by costs, we must include every

Winston D. Adams, Secretary and Treasurer.

element that enters into manufacturing expense, depreciation, interest, taxes and overhead charges of all kinds. Avoidable wastes in operation must be eliminated. A realization must be had of the fact that there is the closest sort of relationship between the various units in the industry and that no one group can long be prosperous if other groups are unprofitable.

"The closest relationship should exist between the manufacturer and his selling agency. I would further strongly recommend that you encourage your selling agent to coordinate his efforts with those of other selling agencies.

"It is a recognized fact that present merchandising methods are antiquated in many ways, due very largely to the lack of any coordination between our selling agencies. One of the factors largely contributing to distressing conditions during the past few years has been the policy of our mills to operate continuously and thereby accumulate stocks of goods when there was an almost complete cessation of consumption demand.

"While the motive—a desire to provide our employees with work—was laudable, the policy has been unfortunate, even from the standpoint of our employees themselves, to say nothing of our stockholders. An added motive in full production, some operating night and day, has been to reduce overhead costs—this has been very short-sighted policy, the fact being that the surplus production has so reduced the price of the product that much more than the saving on overhead has been lost.

"We must find a way to avoid this excess production

President William J. Vereen.

of goods, which has depressed our markets below costs during intervals of every six months for the past several years. Under present methods, these periods of depression and losses have run about six months and in many cases have more than absorbed the profits of the other six months in the year.

"Not only has the policy of over-production caused losses to the mills, but it has meant heavy losses to many of our customers, who, having purchased our goods for process and distribution are caught in one of these periods of over-production and price-cutting. Having learned their lesson, they buy today from hand to mouth. Thousands of our customers appeal to us to stabilize the market, and this cannot be accomplished by over-production.

"Heretofore, the bulk of our production has been handled through commission houses located in the majority of cases in New York, Boston and Philadelphia. Their function has been to study the consumption field, keep in touch with buying agencies, analyze trends in marketing requirements; and in cooperation with mill executives, bring the producer, with the least element of waste motion, into ade-

quate and profitable touch with the buyer. Having acquired a high degree of skill in performing marketing functions, through specialization and economies, perfected by combining products made by different producers to meet existing needs, these so-called middlemen rendered an invaluable service in the development of our industry, espepecially to us in the south; and I, for one, desire to pay tribute to their valued aid.

"But epoch-making changes in the distribution field demand today a modernizing of our merchandising methods. We hope that this can be achieved in hearty cooperation with our existing agencies.

STUDY EXPORT QUESTION.

"In connection with better distributing methods, the thought occurs to me that in the past we have not given adequate attention to our export situation, as a means of enlarging and stabilizing our marketing field. True, more than 80 per cent of our production is consumed at home, but this surplus stock, which has heretofore at times been dumped upon our domestic market, has paralyzed business, so much so as to lower prices below the cost of manufacture.

"If some plan could be devised whereby this overplus of production could be marketed abroad, a most salutary effect upon our whole industry would be achieved. Would it not be a most desirable development if our established commission merchants, who heretofore, in a more or less disjointed manner, have been catering to the foreign field, would cooperatively establish a large export company with adequate capital and branches in the leading markets of the world, and thereby develop a real export business, enlarging the distribution field, and at the same time relieve the pressure on our invaluable domestic market?

"I am confident that the mills who are clients of these selling houses would accord the plan their whole-hearted and unqualified support and cooperate with them in every way to make it a success. And by cooperation, I mean in the quoting of prices, the extension of attractive terms, as well as the manufacture of such goods as would find a ready sale abroad. Would it not be better if such fabrics going to foreign markets were sold on almost any terms, provided the pressure on our vastly more important domestic market were relieved? These are but suggestions to give emphasis to the point I am seeking to make, in the hope that the idea may be considered, my sole aim being the promotion of any legitimate and proper steps that may aid in the stabilization of our industry.

"I beg of you that you seek by every means possible to give to these problems every resource and effort at your command. The goal toward which we are striving is the stabilization of the textile manufacturing industry—not 'on our backs,' so to speak, as has been the case largely in the recent past, but 'on our feet,' paying good wages to our operatives, rendering a real and economical service to the public, providing healthful and attractive working and living conditions for our people and earning a reasonable net profit for our stockholders.

"I challenge the statement which has been made—that southern mill men are individualists and will never cooperate with their fellow manufacturers—that the fight is on and 'twill be the 'survival of the fittest.'

"The charge is unwarranted and those making it have no proper appreciation of the problems under which southern textile manufacturers have labored. The story of yesterday was financing and building the mills in a section devastated and impoverished by the unfortunate war of the sixties, training and educating the employees and fighting for a place in the American and world markets. This struggle and the wonderful accomplishments are too well known to all of you heroes who were a part of it for a younger man to recount the details here.

"The spirit which met and overcame the difficulties of the past still lives and will carry on. The problems of today will be mastered—not by the passing of a resolution, but the same spirit, brains and hard work, so essential to the continued success of any individual business or industry.

"Proper cooperation and coordination are essential today to the welfare of many branches of the textile industry. We owe it to our stockholders, to our employees, and to our customers—yes, further, we owe it to our great country, to fall in line with other great industries, who have successfully worked out their problem, and do our full part in the making of a still greater America.

"In conclusion, permit me, gentlemen, to express to the board of government and to the chairmen and individual members of the various committees, the thanks of our association for the very valuable and timely services rendered during the past year. To Mr. Adams, our able and efficient secretary, who labors untiringly for the good of the association, allow me to express my deep appreciation for his loyal cooperation and assistance. To all of you, the members of this association, I am indebted for your constructive suggestions and able support."

Following his own remarks, the president introduced Dr. Gus W. Dyer, of Vanderbilt University, Nashville, Tenn., whose subject was "Service through Industry."

Dr. Dyer, who has addressed manufacturers' conventions for several years on subjects relating to economics and allied topics, and whose remarks have been carried in these columns, made an interesting address touching upon various phases of economic and political subjects of pertinence to industry and manufacturing.

The concluding speaker of the session was Senator Walter F. George, of Georgia, who discussed "The Stabilization of Industry through Agriculture." Senator George outlined the condition of the southern farmer today as a result of economic developments during the past few decades, and made a plea for serious consideration of his situation, and for some plan providing for an equitable distribution of the national income looking to more prosperity of a permanent character for the agriculturist.

The Afternoon Session.

At 2:30 o'clock Tuesday afternoon, the convention met in executive session to discuss the pertinent question of "Statistics in the Cotton Textile Industry." Previous to this, however, N. Baxter Jackson, vice-president, Chemical National Bank, New York City, addressed the manufacturers, giving "Observations of the Textile Industry from a Banker's Viewpoint." His remarks follow in part:

"You are today seeking the stabilization of your industry. This bespeaks stabilization of the *value* of your products. This involves manufacturing, distribution and consumption.

"First of all, for the accomplishment of this stabilization you must believe in your industry and its future. Just what is the condition of the cotton goods manufacturer today? To be more specific, what are the conditions ex-

isting in the business of your individual members? I have heard this discussed by many textile men during recent months, in fact I have received much conflicting information.

"For example, a short time ago the agent of a large group of mills gave me a statement showing that the operations of these various mills for the first quarter of the current year had been quite profitable. The same day a manufacturer who has not failed to make a substantial profit on his invested capital for the past fourteen years, and one whose prospects for a continuance of this are rated as most excellent by even his competitors, said that he felt so blue about the future that he would consider selling his property. And why? After hearing such reports from time to time I have about come to the conclusion that the condition is best represented by the old adage that "Things are never as good or as bad as they seem."

"They were not as good in 1920 as the prices for fine combed yarn indicated, nor are they quite as bad to-day as they seem to be to the man who still has a gingham inventory on hand.

"The public wants the facts about your industry, but I think if what I know of your business had been obtained only from what I have read of its condition during the past year or so, that I, too, might be blue about its future. I believe it to be a mistake to magnify our difficulties to the extent that you cause outsiders to feel that a solution cannot be found. All facts should be known—but is there any reason why publicity should not be given to the bright spots as well as to the unfavorable news! Isn't there something worthwhile advertising? Capital both in the form of fixed investment and current credit seeks employment where it can be safely and profitably used. Confidence in such investment is based to a large extent on the management employing such funds. If management doubts the future of an industry is it any wonder that capital should grow timid and seek investment in other channels? Your Association is warranted in taking action to see that your industry is not misrepresented.

"The next point which presents itself to an outsider is—have you adjusted your affairs to meet many new conditions which have injected themselves into business in recent years?

"Nothing short of revolution has been taking place in many business methods. Many practices, and methods of production accepted as the law and gospel, hoary with tradition, have been scrapped and thrown aside as belonging to the ancients. We hardly realize what has happened until we compare in many industries the way of doing business to-day with what it was ten years ago.

"In many lines of business the management have made a real honest-to-goodness analysis of their affairs. Results have not been gratifying in many cases—waste, lost motion and other factors were found to be adding a great load to costs.

"I was amazed to learn of a survey made under the direction of Secretary Hoover of six typical American Industries (Textiles, Metals, Shoes, Printing, Building and Ready-made clothing) showing preventable waste in these industries ranging from 29 to 64 per cent—averaging among them all 49 per cent or representing nearly one half of their total effort.

"Is your industry as efficient as it can be made to be? As to how this applies to individual mills can only be answered by their management.

"An analysis of this waste I found interesting. Among the items appearing were—waste in mad competition—waste in lost motions—waste in making things wanted by but few people—waste in an effort to sell the unsalable.

"In other words unwarranted competition, custom and adherence to tradition played an important part in this waste. Discount these figures substantially if you care to do so—and still they are impressive and they have caused many business men to truly 'turn the house upside down.'

"All old accepted and rock-ribbed methods of retail and wholesale distribution are being questioned. Just what changes will be permanent I am not prepared to say. However, the trend in distribution is also toward reducing its cost—something in which you are interested.

"Some people have met these conditions, others are busy doing so. Still others seem oblivious even to their existence. Where do you stand? A question for every man to ask himself.

"Some people have nearly exhausted their surplus waiting for this 'new day 'to disappear. The 'good old days' for many 'Good old Fabrics' is gone and the man who is basing his hopes for future production, to be used in cloth for even two petticoats might just as well liquidate.

"It's more comfortable not to change, but if old methods over a period of years fail to produce satisfactory profits—something new is needed. An industry to be healthy over a period of years must produce profits. Otherwise your capital becomes exhausted and under such conditions no new money can be attracted to the industry. Also inability to properly finance a business nearly always means a sacrifice of values.

"Of course, the products of different mills vary greatly. Obviously, the problems of the crepe manufacturer are somewhat different from the mill manufacturing sheeting. Different as their situations may be, however, there are certain fundamental conditions that do affect both, and if general stabilization is lacking in any great number of the branches of an industry, all other branches are usually affected before the conditions out of line are adjusted. The waves from a stone thrown in a pool all reach its banks, though some points are touched before others. No industry can fail to be affected if any considerable number of its members are operating in conflict with any fundamental economic laws.

"Let me repeat again that the stabilization of your industry is affected by production, distribution and consumption. Let us look now at the general subject of production. What has been the situation in regard to production in our major industries and how does this compare with your experience? A study of our economic history shows the production and consumption of economic goods about in balance around 1900. From then to the outbreak of the war production gained on consumption. Then came the war and its attendant demands. Consumption became abnormal—production was speeded up to match the demand. The production of cotton goods followed other lines in this period.

"The war came to an end.

"Much abnormal demand also disappeared with this. What has been the situation since then? First, the painful adjustment of '20 and '21, followed by periods of fair demand, interspersed with months of unsatisfactory demand and unprofitable prices for much of your product.

"Why have conditions been unsatisfactory?

"To an outsider it appears to be a form of over-production—existing periodically in most staple lines—not affecting all at the same time nor to the same degree.

"It has, of course, been claimed by some that such was not the case—instead they have been pleased to call it under-consumption. I am not prepared to definitely make this distinction and am not appearing before you as a doctor for your ailments but merely to give you the observations of an interested friend.

"Three years ago however detailed figures were prepared within the industry to show that the increase in productive capacity since 1899 was not out of line with the increase in population.

"In fact it was shown that in the cotton goods industry the production per capita in 1921 was less than in 1914. At that time it was claimed that cotton manufacturing had been thrown out of gear by three successive short crops of cotton, causing high prices and resulting in under consumption. Now we have experienced two years of large crops. Still results are unsatisfactory—unsatisfactory during a period when the consumption of economic goods has been great. Never in peace times has labor been more universally employed nor has the purchasing power of the nation been greater.

"Are you meeting the public demand? The public will pay high prices for what they want but not a cent for what you want them to take.

"To overcome these unsatisfactory conditions in the cotton goods trade apparently the only action taken, has been spasmodic curtailment—but this has not brought stable conditions. This same subject was discussed last year about this time. There followed an enforced curtailment even more drastic than its ardent advocates proposed—the drought. Yet six months later, generally speaking, you find the market for many of your products with demand too weak to support prices which will show you a fair return.

"Is it not therefore logical to assume that something more than periodic curtailment is required to bring sure and permanent stabilization?

"Different type mills, let me state again, have different problems, but is not the question of operating many mills on a continuous day and night schedule worthy of some serious consideration? Some at least have followed this plan of operation, justifying it on the reduced overhead obtained. For some it proved to be a mythical overhead—the cost figure was realized, but the overproduction in the product produced resulted in an inventory loss far greater than the cost of producing a smaller volume of business.

"In so far as I know there is no necessity for the continuous operation of cotton mills except the desire of the management to do so. In some industries the situation is different. Once placed in operation the blast furnace of the steel industry must be kept going; the same is true of other units of this business. In following this program, however, they realize that there will be periods when these departments of their business will not be in operation. This necessarily brings about distinct cycles in such industries and their products are priced accordingly.

"Another policy which has brought about over-production in certain lines, has been the continuous shifting of mills from the production which they are equipped to handle, to lines where they *believe* the other fellow to be making a profit. The question as to whether or not there would be a continuing demand for such increased production has seemed to play no part in the minds of many who decided to change the character of their product. Experience or fitness of organization necessary to make the new fabric likewise seems to have caused no consideration. How expensive and sad some of this changing has proven to be! It is much like the crowd on a boat rushing first from one side to the other making equilibrium or stability impossible.

"Seeing these conditions existing over a period of years and the limited results obtained from the type of curtailment adopted, I cannot help but feel that a thorough and comprehensive study of the whole industry is needed to give you the information you require to enable you to direct your business in a way to produce a permanent stability.

"Why have conditions continued unsatisfactory? Do you know?

"Each man presumably knows his own lines, but concerted action and cooperative effort is needed to solve the perplexing questions confronting a great industry such as yours. To effect this you need organization—the organization of your industry.

"The organization first of individual units—these being the conception of individual minds. Industries composed of these units provide a common interest, so we find management working with management for a common good.

"In my opinion much benefit might accrue to the cotton manufacturers by applying this kind of cooperation—real cooperation.

"Some representative body was needed in other industries so they organized Institutes, Boards, etc. Why shouldn't the textile industry or at least the cotton manufacturers have some such permanent body to study the conditions affecting all of your members—first a comprehensive study of conditions within the industry, then outside conditions which affect it.

"Then you have a real basis of considering what should be done—in just what ways you should cooperate. Such a Board or Institute composed of your members, your selling agents and others could perform a useful service, but for its directing head it would require some one to do nothing but direct it. It's a job for one man and a big one too! To accomplish very much there is needed some one to carry on, when individual members are occupied with their own problems of the moment—these will always exist.

"Your business is complex. The use of your product is so wide that your prosperity is affected by conditions prevailing in many lines of industry. Such a Board could gather much valuable information on these subjects for you.

"Such an organization could organize your industry in a way to keep at the least the major divisions posted as to production and consumption of its lines. In so far as I have been able to learn, statistics available at the present time cover only the major lines of woven fabrics, and do not include any detail as to the quantity and value of materials produced in finished or converted form. Furthermore information is lacking to show the proportion of different lines that go into the various consuming channels. Also I have never seen any statistics for industries, utilizing cotton fabrics as their raw materials, that give the quantity used in this way.

"Surely such information is valuable to you and at least most of it could be obtained by such a Board or Institute.

"Your members are entitled to know what the industry is doing and who is using your product and in what amounts, the prospects for the future and general conditions affecting this.

"Such information in your hands I firmly believe would impress upon you that there is no such thing as the mill business—as existing separate and independent of other lines of business. Your products go into too many channels

for you to be independent of what is happening in our other industries.

"As one of its functions why couldn't such a Board or Institute establish a Bureau of Research. For a hundred years your business has been on a factory basis but up to comparatively recent years, your products have been used almost entirely for household and wearing apparel. Diversification of use has come within the past twenty years or so, but even then to what extent has the cotton manufacturer been responsible for this? Did the cotton manufacturer work out the fact that cotton could be used to manufacture artificial leather? Don't you think under right condition of research new uses might be found for the use of cotton cloth? Nearly every other big industry is spending millions in research work to find new uses for its product. And they are finding them every day! As a big manufacturer said recently, every industry needs in a top position an idea gatherer.

"Think of the millions spent by the great manufacturers of electrical equipment in research work—has it paid?

"At least you wouldn't object to owning some of their shares.

"Outside of a few individual mills, who is studying new uses for cotton goods? Some members are blaming unprofitable business on under consumption. So much the more reason for developing new uses. You can only sell what the public wants. Seeing what other industries are doing are you not justified in considering some unified action in the study of new uses?

"Why couldn't such a board or Institute through some department attract to the cotton goods industry creative genius going into other lines? Have you followed what other industries are doing along this line? They are scouting for brains in youth and then planning education to mould these brains for thought in their own lines.

"In conclusion let me again say that you can accomplish just the same results as other business men have achieved by applying the same brand of cooperation."

At the conclusion of Mr. Jackson's address, the convention entered into executive session for the discussion of the subject named, and the press was asked not to report the proceedings. However, the session developed into a most fruitful one from the standpoint of possible results, and at its conclusion, the association authorized a committee consisting of Messrs. Vereen, Patterson and Gossett to select a larger committee representative of the different manufacturing groups in the association, to evolve some plan whereby the conditions of the industry discussed in the meeting might be ameliorated.

This followed the presentation of a suggested idea by George S. Harris, president of the Exposition Cotton Mills, Atlanta, of a

Cotton Textile Institute.

The plan suggested by Mr. Harris would comprise the following organization: Board of directors; director general; chief statistician; technical experts as required; converters; wholesalers; retailers; and legal director. The functions being as follows:

Secure, tabulate and distribute data covering all phases of industry and commerce affecting cotton textiles.

Check and advise the entire industry and trade.

Publish periodically a price index by construction groups, including all yarns.

Conduct group advertising at home and abroad.

Conduct research relating to the extension of the use of cotton textiles.

Direct group activities in export trade.

Direct in all legislation affecting cotton textiles.

Direct as to trade customs, settlement of disputes, etc.

Coordinate the work of existing associations.

The members engaged in an extended discussion of ways and means, immediate and permanent, for the solution of the industry's distribution problems, and it is felt much good will result from the meeting.

The Annual Banquet

constituted the third session of the convention, with President William J. Vereen acting as toastmaster. A splendid menu was served, and an appreciated and appropriate souvenir was distributed by the Cocoa-Cola Company to each delegate attending, this consisting of a souvenir Stone Mountain Memorial half-dollar.

The toastmaster presented Mr. MacColl, who brought the greetings of the National Association of Cotton Manufacturers to the southern mill men, and facetiously suggested that since the emigration of textile capital to the South, many New England mills "can be purchased for their net quick assets, and in order to attract you to our section, we invite you to purchase some of these plants and locate in New England."

Some negro spiritual numbers from Big Bethel choir, famous southern musical aggregation, was the next feature, followed by a Charleston dance by little Miss "Tootsie" Dunbar.

Hon. Edwin T. Meredith, former secretary of agriculture, and editor of "Successful Farming," was the first speaker on the program. Mr. Meredith made an appeal to the manufacturers for consideration of the plight of the farmer, who is such an economic factor in their own prosperity. He presented a plan of his by which the farmer could be given an incentive for the growing of various crops in the proper proportions, through an exercise of the laws of supply and demand and of incentive.

Dr. Howard Rondthaler, president of Salem College, Winston-Salem, N. C., was the concluding speaker at the banquet, discussing the amazing paradoxes which have been brought about in southern life through the development of the southern textile industry.

Vocal selections by the Emory Quartette, and an "address" by "Professor" Manning of Emory, were other features.

A matter of considerable interest was the distribution of a special edition of The Atlanta Journal devoted to the convention, in which satirical items regarding various leading members of the Association were printed.

The Final Session.

As usual, the Wednesday morning session was given over largely to business, and the reports of the secretary-treasurer, joint president of the National Council of American Cotton Manufacturers, National Committee, and Traffic Committee were read and accepted, as was the report of the resolutions committee. There were, however, two features of particular interest at this session, the first being an address by F. Gordon Cobb, of Lancaster, S. C., secretary-treasurer of the Southern Textile Association on

"Research and the Southern Textile Association"

Mr. Cobb outlined the plans and purposes of the Association along the line of developing standards, saying in part:

"It is a generally conceded fact that it is very hard to hold the interest of a body of men when your talk consists mostly of statistics—figures and cold facts—and as my short talk will be more or less along that line, I hope you will bear with me for just a few minutes while I make an effort to present to you what we believe to be one of the most vital needs of the textile industry.

"For a number of years the Southern Textile Association has been hammering at the problem of the operation of your machinery. I only wish I had time to go into detail to show you the things we have done in our Association which has given us more even, stronger yarns with the result of increased production and more product per operative in your mills.

"To confirm this statement, I only ask you to refer to your records of ten years ago and compare them with your present records to get you to realize whether the overseers and superintendents have progressed in their work.

"There has been no radical improvement in carding, spinning or weaving machinery in the last ten years, but with practically the same operating executives there has been a wonderful increase in production per machine and per operative.

"In 1916 our Association went to work with this idea in view: That if it were possible or practicable for you to call to your office Monday morning 50 of the most successful superintendents and 50 of the most successful overseers and give them a practical manufacturing problem and if 75 per cent of those men gave practically the same answer, would you not believe that was about the best information you could get?

"We therefore inaugurated a system which has given us such information for the benefit of all members of our Association.

"I could tell you of many specific instances where your mills have benefited by this work. I see many men in this room who probably would be surprised if I were to tell them of improvements made in their mills which resulted from work done in the Southern Textile Association. For example, many of you have installed additional cards that were not considered necessary when the mill was built.

"If you will refer to the minutes of our meeting held at Wrightsville Beach, June, 1916, you will see the full explanation that led your superintendents to ask you to install those additional cards. Now new mills are putting in more cards per spindle than formerly.

"In short, gentlemen, we have been determining the most practical speeds for machines, for settings of machines, for product of machines, then we have gone back to our jobs and put those ideas into practice.

"That brings me up to the point or idea I wish to present to you for consideration, which is:

STANDARDS FOR TEXTILES.

"To help me get this thought to you, may I ask that you please try to call to mind a single industry in the United States that has so few recognized standards as the textile industry? It is simply appalling to think of the billions of dollars invested in an industry in which the units are so closely related; yet marketing their product in the way the Textile Industry does.

"We believe that standardization is today the most important approach to greater industrial efficiency.

"It is estimated that the savings through standardization in the automotive industry alone has shown a saving of more than 600 million dollars per year, and you know whether that industry is making money for its stockholders or not.

"If you know such things are true in other industries, then may I ask why don't we get something started in the textile industry?

"Just one little illustration: You have a complaint from a customer on some goods you have shipped him. You call your superintendent to the office, he passes what you have said to him along to the cloth room overseer with plenty of dynamite added to make it effective, the cloth room man sees his job hanging by a thread, the boss weaver is given a similar dose. What is often the result? Until those overseers get over their scare, your mill will probably put enough first-class cloth into seconds to have given that customer his entire invoice and paid the freight on it. A radical statement I'll admit, but how much seconds should your mill have anyway on the style of goods you are now making?

"Yes, I know the majority of you would answer that your mill is only making 4 or 5 per cent and you think that is pretty good, which it is. But have you ever stopped to think that you have arrived at that conclusion from a comparative standpoint and not from knowledge as to what really constitutes a piece of first-class cloth?

"You buy cotton by standards, don't you? Those standards protect you if you get a lot of cotton with such a slight variation from the standard as only 1/16 of an inch in length of staple or even a slight difference in color.

"Then would it not be a comparatively easy task to set up standards of tolerances for our product where we have such common defects as thin places, scratch ups, threads out, etc., which are practically the same with all mills which are making the same style of goods. If you had such a standard, it would not matter if the whole bottom dropped out of the market, your sales would be absolutely protected. Your mills would not have to go through the experience they did in 1920 if you had a standard of tolerances for your product.

"The cotton man can make his sales stick by delivering cotton to a standard, even if cotton goes off five cents per pound. But if the cloth market goes off five cents per pound and your customer can find one thin place in a bale of your cloth, he can say the whole shipment is a bunch of rags and you have no recourse.

"To show you the imperative need of standards, I am going to make a statement I could not expect you to believe unless I had an opportunity to demonstrate to you.

"I can set the folder in your mill to make a stroke of exactly 36 inches, run a cut of 200 yards and put a yard stick on the folded cloth and each yard will be 36 inches; then lay the cloth out on the floor, measure it with a steel tape and it will, in some instances, be more than 200 yards. In other words, it would seem that *a yard is not a yard.*

"I could probably cite you instances where 16 ounces is not a pound, but I promised not to burden you with figures.

"However, if you doubt these statements, here is something you can easily try when you go back to your mill. Call for the records of baled remnants—note the yards to the pound of remnants, and also the yards to the pound of

that same style of goods on the day your remnants were baled. You will see that your remnants are always 5 to 10 points heavier than the regular baling of the longer pieces.

"Now if you find that to be a fact, then it looks like you have given away about 20 yards of cloth in every bale of remnants that you have shipped. You know how many bales of remnants your mill makes per year, and you also know how many years your mill has been running. Again I will not burden you with figures, but leave you to draw your own conclusions.

"The American Society for Testing Materials has done some research work in an effort to set up standards for testing cotton yarns and fabrics, but that is about as far as they have gone or can go, without the help of the practical men. I had an interesting talk with Mr. Warwick, the secretary, and both he and Dr. Edwards of the U. S. Testing Company, New York City, are anxious and willing to cooperate with the mills in any way at their disposal to find some practical way of setting up standards for textiles.

"The American Engineering Standards Committee consists of nine national engineering societies, seven departments of our Government, and nineteen national associations, representing practically every industry in the country except: The Textile Industry.

"We seem to have standards for everything, except textiles. I received the shock of my life when I began to look into this standardization problem, and to realize the vast amount of work that had been done towards standardization in practically every industry of any note in the United States. May I refer you to the year book of the American Engineering Standards Committee which shows their list of cooperating bodies. May I read just a few of them?

"Allis-Chalmers Manufacturing Co., Aluminum Goods Manufacturing Co., American Automobile Association, American Boiler Manufacturers Association, American Chemical Society, American Concrete Institute, American Electric Railway Association, American Federation of Labor, American Foundrymens Association, American Hardware Manufacturers Association, American Railway Association, American Supply & Machinery Mfgrs. Association, and on through the list containing practically every industry in the United States.

"May I also refer you to the list of Official Delegates to the three International Standardization Conferences held in the United States. There were representatives from Austria, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Holland, Italy, Japan, and on through practically every country in the world.

"May I also refer you to the list of the American Society for Testing Materials with addresses of officers: Instead of calling the officer's name, I will call the firm which employs the officer: United States Rubber Co., Bureau of Standards, Mass. Institute of Technology, Cotton Research Company; On tire fabrics: The United States Rubber Co.; On hose, belt and numbered duck, The B. F. Goodrich Company; On osnaburg and cement bags, Vulcanite Portland Cement Co.; On knit goods, The Hood Rubber Co.; On narrow fabrics, The General Electric Co., and so on through the list.

"Where are you represented, gentlemen? Where is the cotton manufacturer represented. Would you not say that these men really represent the buyers?

"We overseers and superintendents want to see the practical man have a voice in setting up these standards as a protection to our jobs. The work is beyond the scope of our Association. It is up to the presidents and treasurers to do something, or are you going to sit still and let some kind of an outside organization set up standards for your mills?

Now here is the question: Don't you believe, gentlemen, that you as manufacturers with your practical men working in conjunction with the theoretical men could not only set up those standards better, but that it would be greatly to your financial advantage to do so?

"That is the thought I wished to present for your consideration. I thank you most heartily for your time and attention."

The other feature was an address on "Practical Cost Accounting for Cotton Manufacturers," by E. G. Field, of New York, which is published practically in full elsewhere in this issue.

The report of the nominations committee was made by H. B. Jennings, and the following officers were unanimously elected for the coming year:

President, S. F. Patterson, of North Carolina.
1st Vice-President, J. P. Gossett, of South Carolina.
2nd Vice-President, George S. Harris, of Georgia.
Secretary-Treasurer, Winston D. Adams.

Members Board of Government: T. H. Webb, of North Carolina; C. J. Callaway, of Georgia; V. M. Montgomery, of South Carolina; and J. J. Bradley, of Alabama.

The new president, Mr. Patterson, was not present, due to illness, and Mr. Gossett assumed the chair. Thomas H. Rennie, of Pell City, Ala., presented to Mr. Vereen the retiring president's medal, which was accepted with a speech pledging further cooperation to the organization. The convention then adjourned.

The concluding feature of entertainment was a buffet luncheon served in the Pompeian Grill of the hotel, attended by the gentlemen and their ladies. The entertainment at this function was a series of specialty dances by the pupils of Mrs. William Claer Spiker, following which the members enjoyed a brief period of dancing.

The ladies attending the convention with delegates were entertained with a luncheon, a trip to Stone Mountain, and a dinner on Tuesday evening, also participating in the buffet luncheon on Wednesday.

Parks-Cramer Company, Fitchburg, Mass., have recently adopted the same unique style in the preparation of their magazine and circular advertising copy that has prevailed for years in "Parks Piping Parables." These little talks on humidification, illustrated by cartoons, present mighty interesting facts in a breezy style that will not only assure them a reading, but the reader will doubtless come back looking for more.

Crouse-Hinds Co., Syracuse, N. Y., have recently issued three interesting pieces of service literature. Folder No. 39 shows entrance condulets and also devices for grounding service wire and conduit system. Bulletin No. 2075 describes a new Type F service entrance condulet. Bulletin No. 2089 illustrates and describes condulets for grounding service wire and conduit system.

Warp Sizing

BY PAUL SEYDEL.

Weighting and Other Chemicals.

Chemicals are used in connection with starch to obtain many properties some of which have already been mentioned.

The property of starch paste forming a jelly when cold may be increased or decreased. It would be well to be able to retard the formation of a jelly if at the same time the sizing value of the starch were not impaired. Unfortunately, the gain in fluidity is obtained at the cost of lower sizing value. Normally, when a jelly forms, it cannot be satisfactorily reheated to produce a size of good quality. For this reason, it is essential to keep starch near the boiling point and never allow it to cool even near the jelly forming temperature because even though it does not jelly, it soon becomes partly insoluble which may and may not affect its physical appearance, but it certainly affects greatly its sizing value by decreasing the elasticity and tensile strength of the film it forms.

Many chemicals and processes have been advocated to retard the formation of a jelly and to make possible the use of size that has been cooled and reheated. The best are only makeshifts, if they are intended to permit the use of size prepared the previous day.

Of course, the plentiful use of fats will very considerably retard the tendency to form a jelly difficult to rework after cooling. It makes it possible to apparently dissolve the size after it has cooled but this is, to a great extent, an illusion. The reason this appears to be so, is that in the presence of a large percentage of fat the jelly is not continuous but formed of a large number of small globules surrounded by fat and of course this breaks up readily when reheated. However, it will not form a continuous film and the elasticity or strength of reworked size will not compare with that of fresh size.

Many textile specialists who have carried on real tests have decided that it does not pay to keep size overnight. The only mills doing it with a measure of success have their storage kettles well insulated with asbestos covering so that the size remains near the boiling point even over night.

The practice of covering size kettles as well as storage kettles is gaining every day and rightly so. When the advantages of this covering are considered and how cheaply and easily it can be done, it is hard to understand why there remains a single size kettle in use, not so covered.

First. It saves very soon more than its cost in steam.

Second. Less steam being used to keep the size at the boiling point, the condensation becomes more negligible and more even sizing is the result.

Third. If size is to be kept at all, it should not be allowed to cool much below the boiling point as insoluble starch forms rapidly and this starch loses the coloidal property essential for good sizing. The ideal way is to make size in small batches several times a day and to use the size within an hour or two after it is finished.

I have mentioned the above before, but at the risk of repeating, I want to insist on the urgency of giving even results due consideration and if I can impress the man in charge with the inadvisability of using recooked size I feel that I have rendered him and his employer a real service and it is worth repeating.

China Clay—Kaolin. Kao-lin is a Chinese term applied to the white mineral used for the making of porcelain or china where it derives its English name of China Clay.

China Clay is a pure white clay containing a high percentage of Hydrated Aluminum Silicate ($Al_2O_3 2SiO_2 2H_2O$). China Clay is fairly well distributed over the world but the English Clay has an excellent reputation for textile purposes due to both the excellence of the raw material and the efficient treatment it has received to free it from grit and objectionable contents. There are in Georgia extensive clay deposits which properly treated should yield excellent material for textile purposes.

As a sizing material to give weight and a special feel to the yarn, it is of considerable importance. It is used much more abroad than in this country. Sizing clays are not as plastic as potter clays, the plasticity being due to organic and other impurities which make the potter clay undesirable for sizing or finishing uses. Some users of China Clay have complained that it is hard on heddles and reeds. Pure china clay is not abrasive and if injury is caused to heddles and reeds it is due to the fact that the clay is deficient in quality. Clay for sizing purposes should be absolutely free from grit, mixing a little of the clay with water and rubbing between finger tips, it should feel perfectly smooth and unctuous.

When Kaolin is exposed to atmospheric conditions, it crumbles into a powder which contains generally mica, quartz and sand which must be eliminated. This is done by mixing the clay with water, allowing it to flow into pits called "sand drags" where the coarse particles settle. The water carrying the fine particles of clay in suspension is allowed to flow into long wooden troughs. The fall being rather small, the water with the suspended clay does not flow very fast and just enough to permit the gritty material still in suspension to deposit in these troughs. From there the clay water is lead into settling pits and finally to settling tanks where it is allowed to deposit. The water is drained and the wet clay is finally dried.

China Clay for sizing should be of the best quality, free from color, grit, organic substances, lime, etc. In heavy sizing, a good clay is essential, considerable weight can be obtained without a harsh feeling, but the clay must be free from grit and have a feel peculiarly unctuous. To obtain a good size with clay, the quality of this clay must be very fine so as not to wear the heddles and reeds.

In using clay for sizing, it should be boiled for long periods, anywhere from one to five hours, depending on the weight, the concentration of the size and the pureness of the clay and whether it is in lumps or in a finely divided powder. Finely powdered clay of a good quality does not need as prolonged boiling as lump clay. Clay is a dense, neutral, insoluble and efficient weighting material. The object of using weighters is not solely to add weight to a cloth, but as well to obtain a certain feel, to fill in, to improve appearance. A shade cloth for instance would be transparent without the addition of some weighter used

as filler to make the cloth impervious to light.

Talcum—Soap Stone—French Chalk, represented by the chemical symbol $[H_2Mg_3(SiO_3)_4]$ is a Magnesium Silicate. As a weighting material it acts as China Clay. It does not mix as readily with size but it is used rather extensively as a sizing and finishing material.

The meerschaum used as material for making pipes is a compact hydrated silicate of magnesium. In some localities talcum is used more extensively than china clay; this is due mainly to local conditions, the proximity of the source of supply, saving in freight, and availability. All in all, it is not as efficient a weighting material as kaolin and at even price china clay is preferable from more than one standpoint.

Barytes—Mineral White—Heavy Spar—Blanc fixe. $BaSO_4$, has been advocated because it is available in large quantities and has very great specific gravity. It exists profusely in nature and is obtained artificially by precipitation of soluble barium salts with sulphuric acid. Has more application in finishing than in sizing. It is not advisable in sizing as it powders, makes harsh yarns and is hard on heddles and reeds.

Calcium Sulphate—Gypsum—$CaSO_4$. Widely distributed in nature as white crystals or when dehydrated a white powder, it is called Plaster of Paris. It produces a rough harsh feel and is used more in finishing than in sizing. It has been advocated to be used in conjunction with chlorides but it does not compare favorably with kaolin as a weighting material.

Barium Chloride—$BaCl_2$. Transparent colorless crystals, quite poisonous. Has been advocated but is neither a practical nor an economical weighting ingredient.

Magnesium Sulphate—Epsom Salts—Bitter Salts. Needle shaped crystals. Is a by-product of the manufacture of carbon dioxide. It exists extensively in nature as in Stassfurt salt beds. $MgSO_4—7H_2O$. Contains a little over 50 per cent water. Magnesium sulphate is used rather extensively as a weighting material with zinc chloride and sometimes magnesium chloride. It is very soluble in water and gives a peculiar dull feel to the cloth.

Sodium Silicate—Na_2SiO_3. Advocated by some writers but should not be used in warp sizing as it gives a very harsh feel and is detrimental to heddles and reeds.

Sodium Sulphate—Glauber Salts—Salt Cake—$Na_2SO_4—10H_2O$, is a by-product of the manufacture of nitric acid. Produced also in the manufacture of sodium carbonate through the reaction of sulphuric acid upon sodium chloride or common salt. Half of its weight is water. It penetrates the yarn and in some cases acts as a good weighter. Its crystaline form gives the yarn a peculiar appearance. The effloresecent crystals being quite white when sufficiently dry. One objection to soluble salts is that when dried the crystals may have a tendency to tender the warp; for this reason the use of powerful deliquescent salts may be used in conjunction with them. Without the deliquescent salts, when crystals form they stretch the fibers with the effect of tendering the warp.

Glucose, Dextrose, Grape Sugar. Starch sugar $C_6H_{12}O_6$. For commercial use, it is generally not dehydrated and contains a certain percentage of water. Glucose is prepared from starch usually through acid treatment. When dehydrated, it crystalizes into a white powder. It is sometimes used with weighting materials to obtain a certain feel or finish. Without chloride, and if dried too much, it gives a harsh feel. This can be obviated by not drying too hard and by the adjunction of deliquescent salts.

Dextrines are used extensively as a sizing weighting and finishing material with and without the addition of salts such as chlorides or sulphates or minerals such as clay or French chalk. Dextrines are a starch gum. The dextrines used mostly are made from corn, potato and tapioca starches. They have very good penetration and adhesive properties. They must be used in conjunction with plenty of softener and deliquescent salts to overcome the stiff and the sticky feeling they would otherwise impart to the fabric.

Thin boiling starches obtained through the action of acids or ferments upon raw starches are also advocated as weighting materials. When the acids or ferments have acted sufficiently on the amylopectose to greatly increase its penetration, the starch has lost a substantial part of its sizing quality. From a purely sizing standpoint, excessive penetration is not desirable, it is better to have a well coated warp than one that is thoroughly penetrated. Excessive penetration is too often gained at the expense of pliability and elasticity.

Although thin boiling starches are fair weighting materials they are uneconomical and when considerable weight is desired china clay and other weighting materials are cheaper, more efficient and will not make the warp so harsh.

No matter what weighting materials are determined upon, it is essential to use along with anyone of them, a sizing compound with the proper balance of agglutinant, adhesive, lubricating, deliquescent and antiseptic properties.

For the purpose of bringing the subject of standardization to the people primarily interested, Benjamin Eastwood, Jr., of the Benjamin Eastwood Company, Paterson, N. J., recently called a conference of the quill, bobbin and shuttle manufacturers of Paterson.

Since the conference the standardization of quill, bobbin and shuttle sizes has received some very careful attention. It is evident that if these parts could be standardized, many apparent advantages would result; not only for the manufacturer of this class of merchandise but also for the silk manufacturers themselves.

Now, when the manufacturer of silk orders quills, bobbins or shuttles, he must order far enough in advance to guarantee delivery on time or he is delayed because his and almost every other order is a special one.

If this scheme of operation could be changed, many delays and other annoyances would be eliminated to a large extent. Probably costs could be somewhat reduced. Standardization of sizes would also permit the manufacturer of quills, bobbins and shuttles to make them up well in advance of a probable rush.

The plan has been well received and it is deemed wise to go further with the subject as rapidly as possible. In the meantime, it is hoped others interested will voice their opinion by addressing Mr. Eastwood. In this way a wider viewpoint will be available, which will materially assist in arriving at correct conclusions.

Southern Spindle & Flyer Co., Charlotte, N. C., have been appointed southern representatives for the Rhode Island Humidifier and Ventilating Co., of Boston, Mass.

Scientific Trends with a Textile Slant

When you undertake to "absorb the new graduate into the organization" quite a number of the problems and difficulties which beset the process will be obviated if you will do one thing from the first. Give him a task with an outcome to it that is *worthy* of dividends for you when it is accomplished.

Some of you will argue that jobs aren't made like that, that most of them group themselves into "running a section" or "working out a new method." The latter type of job takes care of itself, in this discussion; if you want that thing worked out, really want it and consider it of much importance, then it is one of these "worthy" jobs.

It does seem as if properly "running a section" is another such job. Not just *watching* it run, to be sure. Actually running it means improving it and all connected with it until it becomes a factor in raising the standard of performance in the entire organization. You have more chance of getting that type of result from these young fellows just out of school, if you put enough incentive before them, than from the average run of men.

Then, before we get off this part of the subject, nearly every organization has that pet problem, or problems rather, crying for solution. Its recurrence gives *it* status, also, as another of the "worthies."

Now when all this is said about jobs that will produce dividends for you it is needless to more than remind you that all the partners in earning dividends expect their cut. This is and always has been all the point there is to any basis of rewarding effort—in proportional relation to what it produced.

Some very dangerous theories are apt to arise and be fostered within school walls. It is rather natural that separation from intimate contact with the everyday doings of the world should produce queer theories and still queerer conclusions about many things. On the whole, however, there is no cause for alarm in this fact and it must be admitted that the beneficial new ideas arising from within educational institutions far outweigh the queer notions in importance. In the field of medicine alone abstract speculation has advanced general health to an immeasurable degree.

The more dangerous theories are the more insidious ones, as for instance: That you can *train* a man for any type of work if he has certain basic qualities, it being considered a fallacy that men are "born engineers," etc. How, then, account for such men as Burbank, Babson and others, whose lore was not to be found in any curriculum until they themselves created it? The above fallacy is the product of the same Teutonic system which has produced scores of technicians but a great scarcity, proportionally, of creative types. You must choose between the two, and base this choice upon the type of problem you have to be solved.

In the fact of the existence of a definite aptitude for one or another type of work is probably to be found the natural balance of the total sum of world talent which makes uniform progress a possibility and a daily fact. The executive responsible for the guidance of the new and valuable human material should see to it that it is kept sound in thought by freeing it from whatever errors may have been gathered to itself during the speculative educational period.

Industry has the opportunity to play a great part in the process of education. By welding *all* types to its use it can establish the most practical possible basis of training the citizenry. It can be, as well, the greatest force in the improvement of educational methods. After all, the school should be the servant of living needs. Then only can it lay any real claim to greatness. This principle is quite an old one.

Some of our schools have proven this to a considerable degree. The success of the school that has joined forces with everyday life through recognition of the need for outside practical contact and the opportunity this affords for economic as well as the practical experience balance is noteworthy. Have not these schools hit upon a fundamental human value necessary to complete success in education?

In this connection, it has been claimed, and not without justice, that the full requirement made of engineering students is more ruthless and disciplinary than beneficial. It is claimed also that it standardizes rather than develops men. This is too true to be neglected, for many of the present systems disregard the extremely valuable "interested men" who seem to align very badly to so many of the standard curricula.

Priestly, Carty, Mitchell and a host of others came from this class. Even Edison himself. This host of genius might have given an even super-valuable service to humanity, beyond that they have contributed, had the principles been recognized and applied which would have welcomed and adapted these workers instead of presenting so many obstacles all along their way. Some of us are aware that while obstacles may develop men they surely cut down the effective quantity of results accomplished.

There is a very definite place in education for the course that will discover and mould these men during their early years. It may be that the most that can be accomplished at first will be to offer them certain advice and guide their choice of elective studies. If their tasks are given in the field which deals chiefly with the materials of engineering and industry and they are directed in the study of techniques applicable to these things, interest in the reasons back of the techniques may be expected which will lead to

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We read, with interest and hope, the large amount being written these days about the problem of absorbing the new graduate into industry. Just why this is such a problem leads us to suspect is not clearly recognized by either the pessimists or the more hopeful. (We find all too few optimists.)

Because the problem is an economic even more than a social one we suggest that it be considered as an effort to capitalize upon the very special material which constitutes newly graduated men.

At this time in their lives young men possess certain assets in greater scale than they will have at any later period. Count among these, enthusiasm, hopefulness, unspoiled eagerness and appeal, originality, and the viewpoint unhampered by the narrowing, restricting influences of later life. Then place over against these your own self-analysis, showing how you may have conceded, a point at a time, one or the other of these virtues. Ask yourself whether you are now as good potential material for development as you were when you held all these qualities intact.

The problem, then, is to how to "direct and govern" these qualities into your special fields of usefulness.

study of the theoretical science, from which background new methods, new products and new inventions will be produced.

The author of the following outline of a course hit upon this principle, stating: "The subject matter is *usually* treated as a course in so-called Descriptive Geometry, in which . . . . . highly complex methods are unnecessarily employed to present to the student a fundamental training in a branch of engineering. The methods now employed . . . . . are such that they can be readily applied in engineering practice without the cumbersomeness of the usual academic technicalities."

In other words, too much theory is *preceding* instead of following practical instruction. I distrust that school of teaching which is unwilling or unable to maintain the interest of the student when imparting theoretical instruction as an advanced course, leading to invention, rather than as a preliminary which drops altogether too many valuable men by the wayside. How does this school of teaching justify its existence, in the face of so many successful "failures" to accord with its methods?

In the South are the very best means to discover and make contact with the "interested men." Certain exceptional schools for that purpose are already existent. If an even more extreme process of discovering these men, by fostering this interest, is applied along the lines mentioned, it is going to be possible to get hold of them *now* and establish relations which are best for all concerned. It is uniting industry and education into a common and valuable economic and social purpose.

* * *

One quality, which can be very useful to industry, is possessed by the right type of educated technical men. It is that they can serve as the liaison between existing business and the newer discoveries of science. "Interested men" do this better than any others. Moreover, there is hardly any line of business which can effectively interpret the newer findings of science unless some up-to-date man is the key note of this interpretation, and his up-to-dateness is in terms of his interest.

When you take a new man you should get not only "another new man" but, as well, an investment in the future. When you consult a skilled physician it is with the expectation that if he finds you suffering from diabetes he will be capable of handling the technique of administering insulin.

* * *

Is there any particular reason why we should look with gloom upon the new acquisition to a force of men? Or is this fact merely a reflection of our own forebodings?

When former President Wilson addressed the officers of the Atlantic fleet, shortly after the declaration of war, he called upon them to do the unusual thing and not to be hesitant because of regulations or other hampering factors.

In the same terms, if we expect the unusual, then see to it that provision is made for its realization. Whether the provision required take the form of sympathy, interest, working space, control of influencing factors, or even that ratio of what is expected of a man in a certain position divided by his income, these things all cost so little compared to the investment whole that the man's worth to the institution.

* * *

The greatest possible sources of profit are not to be compared, in magnitude, with the profits which have actually been realized from the youth and enthusiasm of determined workers. There is so long a list of accomplishments made by irrespressible youth, doing the unexpected, that it would pay to figure this factor into any budget. This, far more than training and skill as soldiers, won the late war.

It is just possible that a logical balance might be struck between a safe figure of profit and a reasonable degree of accomplishment. Perhaps such a balance would satisfy both the impetuous and the conservative elements of business. At any rate, more than one half of the problem of management is concerned with just this problem. The higher up in the scale of personnel the more acute it is.

* * *

If these things seem to be steeped with the "fault" of idealism it is with the openly declared intention of urging you, in your relation with industry and education, to make definite plans for a future even better than you yourself have ever conceived. Make it possible, then possibly it will happen.

World progress simply *must* be made to keep pace with world problems. So many difficulties await solution, in matters of fundamental necessity such as fuel, labor, materials and markets, that every commercial or technical convention is a reminder to us of their urgency.

Having in mind that the record of much engineering performance seldom shows an efficiency of greater than 75 per cent this should spur us on to make the *best* effort possible in these elements of management which may so vitally affect the accomplishment in productive, economic and technical lines. Even with the utmost effort made we must be prepared to try and try again, building upon the structure of previous failures and partial accomplishments to eventual triumph.

V. D. LEPORTIER, who has been overseer of dyeing at the Samoset Cotton Mills, Talladega, Ala., for the past six years, has resigned and accepted a similar position with the Maginnis Cotton Mills, New Orleans, La.

HENRY BARKER BURKE has been appointed manager of the textile bearing department of the Hyatt Roller Bearing Company, Newark, N. J. Mr. Burke will make headquarters at the Hyatt company office in Worcester, Mass., where C. W. Nugent, Jr., and W. H. Wheaton, Hyatt textile bearing specialists, are also located. Before joining the Hyatt organization, Mr. Burke was affiliated with the Bigelow-Hartford Carpet Company as an industrial engineer, and just prior to that was assistant manager of the Hussong Dyeing Machine Company. For fifteen years, since the completion of his studies at the Lowell Textile School, Mr. Burke has been associated with the chemical, designing, sales and production ends of the textile industry. In his new position he will also cover the southern territory from the Hyatt office at Charlotte, N. C., where J. M. Hancock and L. E. Mulloney are located.

George F. Payne, a well known cotton manufacturer in New England, formerly connected in a technical capacity with several mills in that section and Canada, has become special technical representative for Borne, Scrymser Company, covering in particular the application of the "Breton Minerol" process of spraying oil on cotton.

Eastern North Carolina Division of the Southern Textile Association Meets

A further extension of the organized practical discussion in the South took definite form at the first meeting of the Eastern North Carolina Division of the Southern Textile Association, which was held in Goldsboro, N. C., on Friday, May 14th. Spinning subjects mainly were discussed, and a permanent organization formed for further meetings of the division, to cover subjects of the mill generally.

At a recent spinning discussion meeting of the Association in Raleigh, it was determined to create a division for the mills located in the eastern part of the North State, whose geographical location and character of product—for the most part yarns for knitting purposes—would make a separate section devoted to their problems of more direct interest and convenience to them than the general discussion meetings. The Goldsboro discussion was the first called meeting as a result, and thoroughly justified the decision. An interesting round-table discussion was held, a complete report of which is given in the following paragraphs.

C. M. Black, superintendent of the Borden Manufacturing Company, Goldsboro, who during the meeting was elected chairman of the division, was host to the visitors, as well as leader of the discussion which occupied the sessions of the meeting. The meeting was held in the Chamber of Commerce Building, with a good representation of Eastern North Carolina mill men in attendance.

In opening the meeting on Friday morning, Mr. Black stated the purpose of the newly formed body, and entered immediately into the spinning discussion. The first question presented to the meeting was, "What weight and diameter bands do you think best to run on the Whitin gravity spindle with 7/8-inch whirl?"

J V. Creech, overseer of spinning, Mobile Cotton Mills, Selma, N. C., reported that "I use a band that weighs 78 grains to the band. That is about what we try to run. We find that it gives us the best results."

"How many bands will that give you to the pound?" asked W. G. Reynolds, superintendent, Eastern Mfg. Co., Selma.

"Somewhere about 80 to 90 bands," replied Mr. Creech.

"We are running a band 3/16-inch before it is stretched," reported C. C. Prince, overseer of spinning, Borden Mfg. Co., Goldsboro. "After we stretch it and put the twist back in we put it to about 1/8-inch. We find it gives good results; it is about 65 grains."

"That makes about 107 bands to the pound," added Mr. Black.

"We use 85 bands to the pound," said D. F. Lanier, superintendent, Oxford Cotton Mills, Oxford, N. C. "I don't know what that figures to the band. We use Draper spindles on 8s to 12s, and we find that this size band has a long life and gives better service than any other band. These bands are made of roving."

The last sentence brought up the matter of band construction, and in answer to a query from Mr. Black, the majority indicated that roving is used for this purpose, and that 7/8-inch cotton is used mostly in the bands. Mr. Lanier said he uses 1.50-hank roving with 7¾ turns of twist.

"Do you find that it pays to use 1.50- or 5.00-hank roving?" inquired Mr. Reynolds. "In other words, does the finer roving or the coarser roving with less strands last longer?"

"I can't tell that," replied Mr. Lanier, "because I have a coarse mill and do not have fine speeders. But we did try spinning some 4s yarn with a slight twist, but I didn't get as long a life or as good service; that is very similar to fine roving. I use 1.50-hank roving for my bands."

"Well, does it pay to use long or short cotton in the bands?" asked Mr. Reynolds.

"I use short staple, 7/8-inch cotton," answered Mr. Black, "but I believe if we had 1 1/16-inch cotton it would pay us to make our bands out of that for it would last longer."

"What experience have any of you had with cork-covered rolls?" was the next question asked by the chairman.

C. M. Black, the Permanent Chairman.

"We have tried out a few of them," said T. W. Mullen, superintendent, Rosemary Mfg. Co., Rosemary, N. C., and asked L. B. Crouch, overseer of spinning at his plant, to tell of their experience.

"We did not have enough to give them a thorough test," said Mr. Crouch. "They give us fairly good satisfaction. They run about as good as the leather rolls, and last longer; they give longer service."

"Then you feel that the best advantage is in the longer life," asked Mr. Black, "you do not see any increase in breaking strength or in the sizing of the yarn?"

"That's right," answered Mr. Crouch, adding that "we tried them on coarse filling."

"We had a great deal of trouble with covering them," said Mr. Mullen, "as it is not a very simple job, but of course experience would enable a coverer to handle them better."

"May I ask what is the life of the cork rolls?" inquired Mr. Black. "We put them in about three months ago, and of course haven't had a chance to see what the life of them would be."

"Why, we have been running them for several years," answered Mr. Mullen, and Mr. Crouch added that "on 15½s, making 162 r.p.m. front roll, they ran for about 18 months.

"Did you do what they recommended, putting them in a lathe?" asked the chairman.

"We had them re-rolled," said Mr. Crouch.

"Did they groove, and then did you put them in a machine and sand-paper the groove out?"

"Yes," answered Mr. Crouch.

J. T. Phillips, superintendent, Kinston Cotton Mills, Kinston, N. C., reported the use of the cork rolls on 40 frames, declaring they ran several months and then began to grind off. "Whether or not we gave them a good test I do not know. We were running some 1½-inch cotton and had to put a lot of weight on the rolls to draw the cotton. But they run anywhere from fifteen days to five months on Sakallarides cotton."

"We have had them in for three or four months," said Mr. Black, "and we cannot tell that they are saving us anything only on the covering. We don't see any increase in the evenness of the yarn; of course we are on soft hosiery yarn, but we cannot take out any twist."

"While you are on the roll question," suggested Mr. Phillips, "will you ask how many men have really made a test on the leather rolls to see how long they would run?"

"I'm afraid we would be ashamed to tell that," said the chairman. Mr. Reynolds stated that considerable in this connection depended upon the speeder tenders and other factors, but reported that for 18,000 spindles, he uses about 700 rolls a week.

"The point I want to bring out is if anyone has made a test on it," said Mr. Phillips. "I am frank to say that I have not. It is a very expensive proposition in the spinning room."

"I believe we average about a roll to the frame a day," said Mr. Mullen, and Mr. Crouch said that "I use a roll a day on an average number of 19s, on both warp and filling."

W. D. Lawson, overseer of carding, Borden Mfg. Co., said that he once had experience at another mill for six months, with 24 frames of 204 spindles each, where the average on 20s yarn was three rolls a week to the spinning frame.

"I think that is the best I have heard," commented Mr. Black. "We have narrow gauge spinning on soft hosiery yarn, and ours average around three rolls a day."

"Do you consider it an advantage to use bees-wax or other paraffin compound on spinning bands?" the chairman next asked, stating that he had seen something in a magazine about it and had tried it without getting the expected results, and wanted to know others' experiences.

"We are just starting to try that," said Mr. Mullen, "on the basis of results we got in doing the same thing with neck cords for Jacquard looms."

"We expect to give it another test," said the chairman, "but we didn't get the results we hoped for. I thought from a theoretical viewpoint if we could coat the band with bees-wax that the changes in humidity would not make them snap off so bad, but after they arrived at a certain age they would snap off anyhow."

"The work that our neck cords do is entirely different," said Mr. Mullen, "and we coat them to keep the cord from breaking under the constant bending, but figured the same idea could be used on the spinning bands."

"We tried that a few years ago at Columbia, S. C.," reported W. H. Carr, overseer of spinning, Kinston Cotton Mills, Kinston, N. C. "We mixed different ingredients for the purpose for the benefit of the life of the band, but on 30s warp we found that our knots still gave us trouble as the bands would break off at the knots."

Mr. Black suggested to prevent this the use of the slip-knot.

Mr. Lanier raised the point of whether waxing the bands would not stretch more or less with the bees-wax on it.

"That is just the point I was trying to bring out," explained Mr. Black. "The thing that makes our bands stretch is humidity, and the lack of it, and that is the object of putting bees-wax on them—to keep the changes in humidity from having an effect on the bands."

"Well, how do you treat them?" asked J. E. McGee, overseer of carding and spinning, Rosemary Mfg. Co.

"We took a piece of bees-wax and held it against the band while it was on the spindle," answered Mr. Black, and Mr. McGee said he believed it would be better to take the bands off and dip them in a hot solution, which would give the bees-wax an opportunity to penetrate the band instead of remaining only on the outside surface. He said they treated their neck-cords in that manner ,and there was no difficuty in tying the ends afterward.

Also, Mr. Mullen suggested, "bees-wax alone will make the band too hard. You should mix tallow with it as a softener similar to sizing your warps."

The next question was, "What percentage of variation do you find in the average run of yarns, and what places do you investigate to remedy any excess you might find?"

This evoked considerable discussion with reference to the actual amount of variation. Mr. Phillips brought out that he had been attending association meetings for a long time, and while variation in yarns had been discussed hundreds of times, he had never heard anyone tell of an effective way of reducing it. He said he was willing to listen to any suggestion along this line that might be made, and would carry out any test assigned to him and report back at the next meeting as to his results.

Mr. Mullen brought up the fact that so many men, in talking at the meetings, based their statements on opinions and ideas rather than actual facts resulting from thorough tests, and stated if actual tests were made considerable more variation than some people believed they had would be found most any time. The discussion then turned into means for reducing yarn variation, and Mr. Mullen opened this by saying that "there are two things that have helped us more than anything else, and that is a regular overhauling and plumbing of the spindles, and more careful selection and grading of the cotton. These two things have helped us, and if the work runs better it is bound to be more even."

"We had some variation trouble about a year ago," said Mr. Creech. "The numbers began to vary about 2½ numbers. We searched around for the cause, and found the roving had been lying on the frames too long. So now we try to run the roving up every five weeks any-

The Group at the Barbecue.

way, and I find that this cuts out a good portion of what it used to vary.

J. F. Allen, overseer of spinning, Caswell Cotton Mill, Kinston, said something had been done recently in the card room that helped his numbers a whole lot, but as he didn't know what it was, he wanted his superintendent, Mr. Hill, to tell the meeting about it, because it certainly did aid in reducing his variation.

"I found my variation around the laps was too great, and I put in an extra pair of scales on the intermediate lappers and tried to hold the weights around a certain number of pounds, and found on the finisher I could hold the laps to a smaller variation on the finisher," said Mr. Hill in explaining what had taken place to make the improvement in the spinning. "In other words, we reduced the variable allowance on the finisher from ½ to ¼ pound, and I think that has been a great help to us all the way through. That is the change I made that Mr. Allen referred to."

"We have had a similar condition existing with us, and we hope to be through with it within the next week or two," said Mr. Black. "We started after it back in the picker room, and Mr. Lawson found we had a little variation between two different makes of machines of a few inches a yard."

Explaining this Mr. Lawson said, "We have the Saco-Lowell finisher and the Kitson machine, and I measured the laps from them and found I had two yards variation in the length. I am changing the measuring gear to bring the two laps together, and think that will get over our trouble."

"I have been at our place for 22 years, and have always had variation, and think there is plenty to keep us busy for the next twenty years," declared Mr. Lanier. "But we find that even if you don't go back to the card room looking for trouble, there is a lot of variation in the spinning that can be traced to the different sizes of bands, different tensions on them, the condition of the rollers and levers, etc.

"I went to one of the Southern Textile meetings a couple of years ago and they discussed yarn variation, and it got me very much enthused, and I went home—we have a small mill and a fellow has to find something to do—and I thought I would find out just what caused the variation. I worked on it for several days—we were making warps for a neighboring mill, and you know how those mills can kick—and we found we had a variation of 12 per cent on 9¾s yarn. We would weigh 12 or 16 bobbins and it would be all right, but we would have that variation taking a side, and I found a bobbin one day that was away off of weight, and I went back and examined the spindle. I put the bobbin back on and sized it again and it sized nearly 10s, but it broke away down. I broke the band off and put on a new one, and this yarn sized 12 per cent heavier and broke 14 pounds stronger. I don't know how much I could have found if I had kept going from frame to frame, but I was satisfied if the spinner would keep his bands tight and keep the weights off of the back boards, we could get good yarn."

"I once visited a mill where they were having a variation of 30 per cent on 26s to 30s," said Mr. Lawson. "My friend and I got together and went back to the spinning room. One of us raised up the clearer board, and saw the spinner had turned the saddle around, putting the big end of the saddle on the middle roll. We then found that they had about two-thirds of them turned around. I don't suppose anybody will ever find that trouble, but now if I was to have a heavy bobbin of yarn I would look for that the first thing."

The other gentleman involved in this was also present, and explained that the reason the spinners did this was to keep the roving from running out the sides on Mason frames, and that finally he cut the big end of the saddle off so it would not make any difference which way it was turned.

The next few questions pertained to humidity in the spinning room, the first being taken up as follows, "What percentage of relative humidity do you try to keep in your room, and do you find that when you go above 55 per cent that your rings show signs of rust, especially after standing over the week-end?"

George F. Brietz, superintendent, Mobile Cotton Mills, Selma, N. C., commented to Mr. Black upon the high relative humidity carried in the spinning room at Goldsboro, which he had visited Friday morning. "You carry as much in there as we do in the weave room," he said.

"I keep it at about 63 per cent," explained Mr. Prince, overseer of spinning at Goldsboro. "That is dry bulb 80 and wet bulb 72. We do not have any trouble with rusted rings."

"The reason I asked this question," said Mr. Black, "was I read an article about this humidity above 53 per cent rusting the rings, and we have increased ours to 63 per cent, but we do not want to continue it if anyone here has found that a high humidity will cause the rings to rust. I don't want to ruin our rings, and if there is any danger in it I want to know it." He stated that he has a higher relative humidity than he has ever carried; in fact higher than it was a month previous.

Mr. Phillips asked if anyone present was using temperature regulators in the mill, especially with the steam heat used in the winter time.

"I have never found them to work accurately," reported Mr. Mullen. "We have them in the No. 3 spinning room. We have an automatic control of heat with one diaphragm valve controlling the whole room. Of course, some places you have to turn it on and other places you have to leave the heat off, because of the construction of the mill. These systems of control are in theory all right, but I have never found them to be so good in practice."

The next question was, "In the summer months, do you find that you get better results if you open the windows from the top and keep the bottom closed, because by opening the bottom ones it has a tendency to drive the humid air to the ceiling. What have you noticed about this?"

"I find opening the top windows gives the best results," answered Mr. Creech. "And may I ask at what temperature the automatic heat control Mr. Mullen has operates?"

"About 80 degrees in the winter time; it would cut it off there," replied Mr. Mullen.

Mr. Crouch said also that he gets better results with the top windows open and the bottom windows closed.

The chairman next asked: "Do you notice if your work is running bad from lack of humidity that when you start your humidifiers that your coarse work will show the effects first, or the fine? If either, to what do you attribute the cause?"

"I mean after you get your humidifiers started, and the work is running bad throughout the spinning room, which picks up the quicker?" explained the chairman.

"I should think the coarse work would pick up sooner because you have more stock there," said Mr. Phillips.

"Well, would it absorb it quicker in volume than the fine work would?" inquired the chairman.

"Yes," said Mr. Phillips, "you have a coarse roving not twisted so much."

"I would like to ask if Mr. Phillips had made a test on that," inquired Mr. Lanier. "I know you can take 400 pounds of skein yarn and let it stay in a conditioning room for 24 to 36 hours and it will regain about seven or eight pounds; and you take 400 pounds of tubed yarn, the only difference being the skein yarn is slack and the tubed yarn is tightly wound, and it will regain from eight to eleven pounds."

"Yes," agreed Mr. Phillips. "You take 400 pounds of 30s and 400 pounds of 18s, and the 30s will get the most. I don't mean to go in that far, but I think the question was asked about the actual running in the spinning room. I don't know what puts the moisture into the tightly wound tube. It is wound harder and will hold it, and naturally the skein will lose some when it hits the dry air."

"Would the paper cone or tube have any effect on its absorbing more water?" inquired a member.

"I should hardly think the cone would take up enough to make any difference in the percentage of regain," said Mr. Black.

There was some discussion here with reference to the amount of regain secured in conditioning rooms, the reports ranging from 1.5 to 3 per cent. Mr. Black said he is getting about 2 per cent; that since he had increased the humidity in the spinning room, it had lowered the regain in the conditioning room "because there is just so much you can get in, and no more."

Leaving the humidity question, the chairman next presented a question asking "what spindle speed do you consider best for 20s hosiery yarn, say with a multiple of 3.35, with a 1¾-inch ring, using ⅞-inch cotton?"

Answering this the men gave their present practices. "My cylinder speed on 20s is 295 r.p.m., and my spindle speed is 6,418 r.p.m. I run 18s and 24s on the same thing." This mill has separators, and runs a front roll speed of 165 r.p.m. on 16s and 150 r.p.m. on 20s.

The men from Caswell Cotton Mills reported a spindle speed of 7,300 r.p.m. on 20s, and Mr. Black said that the consensus of opinion seemed to be for 7,000 r.p.m. for 20s. "We do not make hosiery yarn, but we use a 3.35 twist in our filling, and our spindle speed is 6,900 r.p.m. on 20s," added Mr. McGee. "I think we run 12½s to 25s filling that way on a 1⅜-inch ring."

The ninth question presented by the chairman was, "What advantage have you found the No. 1 flange ring gives you over the No. 2?"

"I think the ring people got all the advantage out of it," said Mr. McGee. "They took out the No. 2 and put in the No. 1."

Mr. Black said he had one frame equipped with the No. 1 flange and had been unable to secure all of the advantages claimed by the ring makers.

Peter Quinn, of the Draper Corporation, Atlanta office, declared that the biggest trouble with people changing to the No. 1 flange ring was in the traveler; also he said too many failed to make the proper adjustment of the traveler cleaner, which, he declared, is one of the most important and most neglected points about the spinning frame.

Mr. Quinn said if the cleaner were set properly it would eliminate a lot of the prejudice against the No. 1 flange; furthermore, it would break the yarn down in case of a bad piecing up or accumulation of clearer waste, etc., and cause the spinner to be more careful.

Mr. Phillips asked for a discussion of the traveler question from L. C. Taylor of the National Ring Traveler Company. Mr. Taylor, discussing the traveler cleaner, declared

this could be eliminated by the use of the "double-duty" traveler which his company produces. This, he explained has a small hole in the back, through which a current of air passing blows all accumulation of lint, etc., away; also, he said, the points of the traveler are 25 per cent harder than usual. Further, he explained, the traveler has an exceptional elasticity in the back for fitting onto the ring.

"I have had a great deal of experience with them," replied H. M. Culbreth, overseer spinning, Borden Mfg. Co., Goldsboro, "but I find they load up just the same."

"That is the first time I have had that brought to my attention," said Mr. Taylor, "because the loading is practically eliminated."

"We didn't take our traveler cleaners off; would that have any effect on it?"

"I cannot see that it would," said Mr. Taylor.

"We tried it on 12½s filling and I couldn't tell any difference in the loading and it didn't last any longer," said J. T. Garner of the Rosemary Mfg. Co. Mr. Taylor here reported an instance of a new mill that found the double-duty traveler more efficient than the ordinary type in starting up some new work.

Mr. Phillips said he had probably used the first of this type traveler in the South, and that on the new No. 1 flange rings he put on 35,000 spindles of a 130,000-spindle mill, it worked satisfactorily.

Mr. Allen declared it was dangerous practice to change the traveler to any other kind unless the ring was changed. A traveler man told him that, he said, after he'd got into lots of trouble recommending different travelers occasionally.

"That is a point well worth-while," endorsed Mr. Taylor. "It is the opinion of the manufacturers of ring travelers to start in with the circle traveler you intend to run as long as you are on that work, because the traveler cuts a run-way in the ring ,and every time you change travelers you have the same condition."

The next question was, "What is the general practice with regard to changing travelers?" which was asked by Mr. Black.

Mr. Crouch said he changes every week.

"Why?" asked Mr. Allen.

"Because they wear out."

"After all," said Mr. Phillips, "aren't there just three points to travelers—the circle, weight and temper? When you say that, you have said everything there is to travelers."

"How about the width and breadth?" asked Mr. Reynolds.

"That comes in the weight," answered Mr. Phillips.

"We use 7-0 travelers, and running day and night we change fourteen days, and every twenty-eight days when we run one shift." reported Mr. Creech.

A. C. Atkinson, superintendent, Clayton Cotton Mills, said he changes once a week.

A man from the Erwin Cotton Mills reported that on 8½s, with a 2⅛-inch ring, he changes travelers every two weeks.

Mr. Lanier said he runs 8s to 12s on Draper speed and changes travelers every week. "We have to do it to keep the spinning going."

"We change every four weeks on coarse work, and every three weeks on the finer numbers," reported Mr. Prince.

"Well," said Mr. Phillips, "in these days I change numbers more often than that so I have to change the travelers."

The proper distance to set the guide wire from the top of the bobbin was asked for in the next question from Mr. Black.

"The guide wire should be set 1½ inches from the top of the bobbin on filling wind and filling," said Mr. Quinn. "That is one reason you can use a little longer bobbin on filling wind; on the regular warp it should be about two inches. You can regulate the travelers a lot better."

Mr. Reynolds said he had formulated this rule for his own guidance—the distance between the top of the bobbin and the guide wire should equal the diameter of the ring. "If you will do that you will not go far wrong."

"What method do you consider best for the care of rings and the ring rail?" was next asked by the chairman.

"I think the rails and ring holders ought to be cleaned every three months, answered Mr. Allen.

"We clean ours every two years when we overhaul," said Mr. Lanier, "giving them a gasoline bath."

"We clean once a year when we overhaul," declared Mr. McGee. "I have heard of some of the eastern spinners using soda ash, in a boiling, or nearly boiling solution of water, and having a derrick arrangement to lift the rails from a side and let them set for a few minutes."

"Doing that you can leave the rings right in the holder and the holder in the rail," observed Mr. Black. "How strong a solution would you recommend?"

"I cannot tell you that," answered Mr. McGee. "It would take about 20 gallons of water to fill a trough, and about one pound of soda ash should be enough."

Several men reported the use of kerosene for cleaning the rings and rails, but Mr. Quinn and Mr. Reynolds and others declared this was bad practice, as the kerosene would cause the parts to rust more quickly when moisture hits them.

The last question on the questionnaire was, "In changing from 10s to 14s, using the same hank roving, would you deem it advisable to open the rolls a little to take care of the bulk stock?"

Those answering this were unanimously of the opinion that this change in number would not make a change in roll settings advisable in a case of this kind.

One of the men present asked if anyone was using filling wind on a 3½-inch gauge frame without separators. Mr. Reynolds said he had done it in the past, although Mr. Quinn said that separators really should be used.

On tape drive, another man stated, he was having difficulty in eliminating vibration with ball-bearing cylinders. He had changed the belt to a smaller width, and done several other things, but the tendency to shake remained just on the driving end of the frame, so he had come to the conclusion that the bearing surface on the ball bearing was not sufficient.

The next question was "How often do you oil the bearings on the idler on tape drive?"

It was brought out in this connection that when the idler on the tape drive was first brought out, there was some trouble with the oiling; but that they have been improved until now they run, according to the reports made, for years without any trouble.

D. F. Burns, superintendent, Durham Hosiery Mills, Durham, asked if anyone had installed the Firth-Smith

dustless cleaning system for spinning. Mr. Black said he had hoped to have at the meeting a man who was using it, but that he couldn't attend. Mr. Quinn said the Lanett mill in Alabama were trying them out. His opinion, however, was that it did not remove all of the lint from the frame; adding that the makers were perfecting the apparatus at the present time.

Mr. Brietz asked for practice with reference to cleaning bolsters. "I have never been guilty of taking them out but once," said Mr. Reynolds, "and I'll never do it again." His method is to give them a kerosene bath by putting the kerosene in the bolster.

Mr. Quinn said the best way to clean the bolsters is to use compressed air; adding, in response to a question, that this does not dirty the yarn on adjacent frames.

"What is the average life of a Whitin spindle bolster running 8,000 r.p.m.?" asked Mr. Creech.

"It depends on the oil you use," said Mr. Hill.

"I think the oiler has a lot to do with it," added Mr. Allen.

"We oil every fourteen days running double shift," said Mr. Creech.

"I hear some fellows talking quietly back here who won't talk out loud who say about 20 years," said Mr. Brietz.

"We are changing some we have had for 20 years," added Mr. Black. "We got in some new frames and the bolsters do not fit, so we sent them back to the shop to have the slot cut in the base and we plan to continue using them when we get them back."

This concluded the discussion and the morning session, and at one o'clock the delegates were served with a palatable barbecue on the farm of Mr. P. L. Borden, secretary-treasurer of the Borden Mfg. Co., as the guests of the mill.

The afternoon session was devoted largely to business. Robert W. Philip, associate editor of COTTON, described the Casablancas system of long draft spinning, regarding which a complete story appeared in the April issue of COTTON.

By unanimous vote, Mr. Black was elected permanent chairman of the division, and Norman B. Hill named as permanent secretary, and it was voted to hold the next meeting in Rocky Mount, N. C., some time in October, 1926. The meeting then adjourned.

Cost Accounting for Cotton Manufacturers

BY E. G. FIELD.*

American industry is still passing through an era of which the most important phase is the application of science to business. In many respects, American business men continue setting a pace viewed by the rest of the world with amazement, admiration, alarm or envy. Our leadership in the domain of industry is today more widely conceded than ever before.

This progress in the industrial field is largely the result of our adaptation of scientific principles to the solution of commercial problems. Business planning, research, quantity production, economy, organization, simplification, standardization, etc., with new and better methods of accounting, all are contributing to the impulse which has placed America in the front rank of manufacture and enterprise.

Business men of the South are sharing to a greater extent than ever before in this movement to establish industry on a sound basis. None will question that industry in the South is driving forward at a pace that presages great achievement. To maintain that progress and attain your goal—the South's true share of industrial reward—you must continue to forge ahead in the application of sound modern methods to your business.

Of the factors I have enumerated as contributing to America's industrial advance, modern accounting has been perhaps the latest to gain recognition. It is now rapidly earning its rightful place in the estimation of progressive and far-sighted business men.

Today there exists an almost unanimous opinion that accurate knowledge of costs is indispensable to business success. This conclusion was not obtained over night, however, for it expresses much consideration. It is based upon hard experience such as the contemplation of a deficit when the profit and loss account had been expected to show a surplus. Exceptional instances in which business enterprises have been successful in the absence of a knowledge of costs, though emphasized by some in an effort to disprove the rule, in reality only tend to show the universal need.

Unfortunate experiences in the application of cost methods have shown common misunderstandings as to principles and purposes. Any attempts to use costs as a cure-all will prove disappointing. A gun does not shoot birds; it is the man behind the gun who bags the game. Costs must be recognized as an instrument of management.

Were I to ask how many of you had sufficient belief in costs to use some method of computing, nearly every one present could raise his hand. The assertion, "I know my costs," is so frequently heard as to convey the impression that an accurate knowledge of costs is general in textile manufacture.

Yet it would be worth while to pause to inquire whether our business executives actually know their costs of production, or whether they are relying on unworthy substitutes therefor. It would be interesting to learn how many so-called cost systems are operated in note books or even on the back of envelopes.

Disastrous results from the use of such "systems" have led to questions as to the value of costs for effective aid to management. It will be my purpose to show that any such doubt is due to a misconception, a bugaboo, due to unsound principles or faulty methods. I further hope to show that reliable costs, practically obtained through scientific systems, are not merely serviceable, but highly profitable.

For the purpose of bringing out the points which we are to consider it will be convenient to divide costs into two major divisions: (1) those of the business as a whole, and (2) those of an individual product or fabric.

Costs in the aggregate are not difficult to obtain. They pass to executives and officials in the usual form of quarterly statements and annual reports, supplemented by va-

*Member of the System Staff of Peat, Marwick, Mitchell & Co., who presented this address before the American Cotton Manufacturers' Association at Atlanta.

rious statistics showing the quantities of output represented by the expenditures, divisions of the sales dollar expressed in percentages, and certain averages of expenditure called "costs per pound." There certainly is no reason why a manufacturer should not know what it costs to run his business, although on many points it may be questioned if he knows to what extent these costs may be changed.

Ascertaining the cost of an individual product presents a more complex problem. It involves the application of expenditures to articles of a specific style, size, construction, weight, quality, etc., of which a variety is being manufactured simultaneously. Difficulties arise from an attempt to assign a part of a specific expenditure to any one of a variety of fabrics going through the mill at any one time.

There is also a practical cost consideration of the effect of doing several things jointly. For an analogy, let us assume that you travel to New York for a business purpose and on your return stop off in Washington for another transaction. What then would the total of your expenses show as the cost of making either of these visits? Would you arbitrarily divide the total expenses by the miles as a basis? And if so, what miles would you use? Were you to contract to make either of these visits again, probably you would be much more concerned to know the cost at which you could make one of them again.

As practical mill men you are interested in practical ways to arrive at reliable costs of your products. You desire to know not only what your goods have cost but what the fabrics are costing to manufacture today and should cost to make next week.

To serve these purposes, four kinds or phases of cost data are needed:

(1) Historical costs, recorded after the article has been completed;

(2) Current costs of the fabrics in process;

(3) Replacement costs, to manufacture the same article again presently;

(4) Future costs of manufacture, under predicted or assumed conditions.

Any and all of these should be available to the progressive manager.

It is apparent that there would be some relation between these costs and that, therefore, there should be a common base. Such a base is readily available. Its elements may be found lying around in your mill in the shape of various data or knowledge possessed by individuals, in readiness for you to assemble them into a basic file of standard costs for each individual construction of fabric.

At the mention of the word "standard" there are undoubtedly some who would like to say, "There is no such thing!" Experience, however, has demonstrated not only that standards can be established for any kind of manufacture, but further that reasonably accurate standards will prove satisfactory in practice.

Keeping definitely in view our objective—to ascertain the costs of any individual fabric—how may you go about setting up these basic standard costs, and make them serve your purposes? Normal standards will represent and express normal expenditures under normal conditions. They should be set up with consideration for the business prospects of the individual mill, because practical commercial capacity enters into costs. If a mill may be expected to operate normally at an average of 80 per cent of its possible capacity running 55 hours per week, its standards should be compiled to include expenditures necessary to that normal condition of operation.

It will be convenient to assemble the normal operating expense into a mill operating budget, so apportioned that a fair share of the whole cost may be allotted to each department of the mill. The departmental operating expense may then be reduced to a normal expense charge for each producing unit, per card-day, per hundred spindle-days, per specific loom-day, etc.

The budget of mill expense establishes the first basic standard. The actual charges are to be collected in similar manner and compared to this standard will then clearly show the control being exercised over current expenditures.

The second basic standard to be established is the standard production. Standards should be established for the quantity of output to be delivered for every operation from each unit of equipment when running on any given size or kind of product.

The third basic standard should represent the direct labor cost for the machine operators, which is not to be included in the mill expense, as all such labor is directly employed to produce specific products. When much of the direct labor is on piece work, the scale of wages may be converted into standard direct labor costs for each operation. When direct labor is paid by the day, the day rates, through division by the standard production, may be reduced to the standard direct labor costs.

The fourth basic standard would furnish information as to the operation expense cost per unit of any product. These standard expense costs are determined by dividing the normal operating expense rates, first mentioned, by the standard production rates, second mentioned.

Thus, a standard rate file, with a page for each operation showing (1) the quantities of production per unit-day, (2) the direct labor costs per pound and (3) the normal expense costs per pound, becomes the underlying structure for practical cost determination.

Such a file is outstandingly practical and focuses pertinent facts in a manner easily understandable by anyone with practical mill experience. Standards may be prepared for any numbers possible to run, in addition to those usually made. A collection of such standard rates would represent the accumulation of the best knowledge available. Once determined, they should remain without further repetitive calculations as long as the same operating conditions apply.

These standard rates are used for two purposes: (1) to determine standard costs of individual fabrics, and (2) to measure the output of each department. Deferring, for the moment, consideration of the former, let us note some of the advantages of standard rates to measure the output of each department.

Would you like to sit in your office and each week receive an authoritative statement showing how the actual costs in every department are comparing with standards? Some mill executives are doing this now, keeping before them a record of the effectiveness of each department. The report may show the carding costs to be jumping to 1.10, which is 10 per cent above standard. The manager calls the superintendent and finds the latter has already been in touch with the overseer and can now assure the manager that the costs will be back to normal this week.

In one instance, the overseers were advised to see how much they could reduce their actual labor costs, compared to standard. In a very few weeks their labor costs were being held at five per cent less than was formerly the rule. This was done without any pressure on the part of the mill management.

In another instance the labor in one department was discovered to be consistently higher than standard. As there was no apparent reason therefor, a detailed check was made and it was found that a portion of the payroll was being padded by a dishonest employee.

These experiences, while of direct interest to the management, are usually of secondary importance when one sees the eager interest of the overseers to have their efforts properly brought before the superintendent and the management. Standards based on practice furnish a bond for common understanding and better cooperation.

Reverting now to the use of standard costs to obtain the actual costs of products, an analysis of each fabric is patently necessary to determine the technical specifications for manufacture. The same specifications, when properly extended at the correct standard cost rates, furnish the standard cost of making each fabric. The details of such costs may be readily compared with the actual costs and the differences studied.

Through a simple system of accounting, any ordinarily bright clerk can record the actual expenditures as compared to the corresponding standards at basic standard rates. In this way, experience develops data to show how the elements of cost, i.e., materials, labor and expense, vary from the standards established. These variances, expressed as cost ratios, may then be applied to the standard cost of any individual construction to promptly convert that standard into a current actual cost.

The ease and simplicity with which such data can be obtained largely depends upon the soundness and practicality of the system used. Any clerk can obtain these results provided he follows a scientifically designed system properly installed. Engineering and mechanical skill are required to design and construct an automobile, but an inexperienced operator can soon learn to drive it. Equally so, particular experience is required to inaugurate a satisfactory cost plan, even though its operation may be comparatively simple.

At this point, I would like to call your attention to certain troubles commonly encountered in the use of costs obtained by other methods and indicate how these troubles disappear when costs are predicated on normal standards, as by the method being explained.

A little knowledge may often prove more disastrous than none. One thing that prevents mill men from knowing their real costs is the common recourse to averages. What would you think of a mill manager who averaged data applying to tire goods and ginghams? Some departmental situations almost as bad may exist in your mill.

In the early days of mill costs, somebody devised an "average cost per average yarn number." If you have one of those things, I recommend that you cremate it so as to leave no trace. There are probably more cost crimes committed through association with that "average per average" than in any other way. Why compute average costs at specific conditions that are never properly indicated even by the average yarn number? You can determine the practical costs for each yarn number.

Every mill man has had experience with costs that sometimes fluctuated surprisingly. There is a traditional belief that costs vary somewhat in the inverse proportion to production volume. It is commonly expressed that costs go down as production goes up. While this is true, when recourse is had to averages of expenditures spread over a fluctuating output, the resulting figures distort costs and destroy much of their usefulness.

Can you hold a superintendent responsible for costs based upon business volume over which he has no control? It is obvious that costs depend upon economy of expenditures and rate of production. A superintendent can regulate a cost per available spindle and a production per spindle used. Useful cost data must therefore show the cost to produce from the equipment actually used.

Profits should show the gain due to manufacture at normal conditions and the gain or loss due to operating at conditions other than normal. Then the management will be in a position to control the manufacturing costs and to observe the effect on profits of capacity used. Modern accounting, with practical costs predicted on normal standards, will distinguish between profit from manufacture and profit from volume of operation.

The textile business is highly competitive. Mills catering to any class of trade continue to report "spotty" conditions of prosperity at differing degrees of operation. What can you expect when mills operating at 90 per cent capacity are quoting prices which should be possible only when operating at 130 per cent capacity? I hardly need to point out to you that this has a tendency to disorganize the market and inflict harm upon the industry as a whole. Some of the busy mills are going to fall far short of their expected profits. Vital decisions relating to costs and profits are being made by the executives of many mills upon guesswork under competitive pressure. They are playing—gambling—with facts not clearly seen.

Nor can we expect the abnormally large profits attainable from the manufacture of certain fabrics to remain available indefinitely. News of such profits travels fast and invites competition. You have seen plenty of examples of this kind, such as wide sheetings, dimity, etc.

It seems fairly obvious that textile manufacturing has reached a stage where the subject of costs is of leading importance to the industry as a whole. Managements must give some thought to the morrow in order to prevent competition from governing their business.

As an example of executive competition, I would call attention to the mill that unwarrantedly increases its proportion of the business at the expense of the trade as a whole. In a particular instance that came to my attention recently, a mill manager went after business by quoting prices away under those of his competitors. Big orders piled up, while his competitors, hot and squirming, debated whether to follow his lead. The price cutter declared he had intentionally broken the market because he believed there would not be enough business for all, and he had figured how much he could cut his costs and unit expenses by running full time. What recourse had his competitors? They were compelled to bring prices down somewhat to keep him from cornering the market. The more conservative talked quality, delivery, responsibilty, etc., to the trade. But the manager who tries to cut an economically balanced market will, sooner or later, get into trouble, for his acts are like boomerangs returning to their source.

Venders will become cautious as to the price raider's credit and bankers as to his loans. Meanwhile, the other mills in the line suffer. The market is disorganized and buyers remember the day.

Another type of mill always to be reckoned with is the small mill which has no cost system or definite plan other than to trail the market and quote prices under a recognized leader. Such a mill has a bearish effect upon the market. Often these mills may show a low return per spindle, per loom, etc.

When a mill fails to show a fair return, two main reasons are often assigned: (1) Excessive competition in volume and price in specific lines, and (2) lack of proper market for the profitable output possible from the equipment.

Why should you restrict your mill to a single line of activity? Why not diversify into several lines and place yourself in a position at all times prepared to accept orders from the stronger and more profitable lines? To diversify safely it is absolutely essential that you know your costs; not some average costs, but real, honest, individual construction costs. You must know these goods before you take the contracts and not afterwards. To obtain real costs, there is no better method than the normal standard cost plan I have described.

The man who sticks to a continuous quality of staples has little leeway for profits; in fact, he trades high profits for easy continuity. On the other hand, a hustler is needed to follow the market closely and search out the profitable orders for fabrics, which are almost going begging because many mill men have no idea of the possible profits. In many of these fabrics of newer ideas and for newer uses, big profits are often hidden. Therein lies the opportunity to steer your sales organization so as to bring in the profitable fabrics while they are most profitable.

Lack of adequate market is largely an economic problem, requiring special consideration. This must be due: (1), as to whether or not the individual mill is obtaining its fair proportionate share of the total business, and (2), as to how the total business may properly be increased. It is right here that such an Association as yours may be most useful in studying the needs of the industry with respect to its capacity and its market.

While business may be extended by lowering prices, there is a practical limitation to such extension. Since the World War, our national productive capacity has been so expanded that deliberate price lowering, solely to obtain sales volume, is most dangerous. Means must not be viewed as ends. Management must secure reasonable volume at reasonable profits, rather than excessive volume at the sacrifice of profits.

The use of modern cost accounting will be found to be most highly developed by the highest grade of management. The promise of the textile industry rests today in the hands of managers who are artists in their line; who insist on knowing all the facts of costs and operations, so that they may be ever alert for opportunity to increase their success and the prosperity of their mills.

The possibilities are there! The manager who truly knows his real costs and properly utilizes all the opportunities in mill operation is the man who will lead his chosen field.

Texas Mill Men Meet at Mexia

Texas cotton mill men, with a sprinkling of visitors from Georgia and the Carolinas, met in the heart of the Texas oil country on May 7th and 8th, when the Texas Textile Association held its annual convention at Mexia—which, by the way, is not pronounced at all like it is spelled.

The town of Mexia has been developed largely during the past five years as a result of an oil development, and just exactly one year prior to the convention, the Mexia Textile Mills were opened, so that the youngest textile town in the state was host to the mill men. Youthfulness in the game, however, detracted not at all from the knowledge and ability of how cotton mill men should be entertained—and the visitors reluctantly departed from Mexia bearing most pleasant recollections of the splendid program of food and entertainment provided by President J. K. Hughes, and Superintendent J. G. Coman, of the local mill, who were assisted, it seemed, by the entire city, including the Chamber of Commerce, the musicians and school teachers, and every other citizen of the thriving community.

A fairly representative attendance was on hand to enjoy the entertainment, and participate in the meetings. President Grover C. Dilling, superintendent of the Brazos Valley Cotton Mills, West, Texas, and Secretary-Treasurer Dan H. Poole, superintendent, Sherman (Texas) Manufacturing Company, were in charge of the sessions of the convention, which were devoted exclusively to practical discussion of mill subjects, this being reported in the succeeding paragraphs.

The convention opened informally with registration of the delegates on Friday afternoon, May 7th, following which the visitors were taken on a tour of inspection of the oil fields of Mexia, with Mr. Hughes as official guide. An interesting insight into the amazing activities of oil development was given the delegates by Mr. Hughes, among his stories being one of how he bought a plot of oil ground for $6,000 and sold it for $600,000. Such experiences as these made the mill men wonder why he ever went into the cotton mill business. Seriously, however, a need for the textile mill was felt, and a most modern plant was erected. Following the oil field visit, the mill men inspected the plant in accordance with the custom of visiting the local plant adopted by the association at its meetings.

Formally, a banquet at 6:30 o'clock Friday evening, at the Lion-Tarian Inn, began the sessions of the convention. Noel Hollingsworth was toastmaster and also made the address of welcome, to which J. B. Bagley, textile director, Texas A. & M. College, made the response. Musical entertainment by local artists continued the program of the banquet, which was concluded by a talk from Mr. Hughes giving "some of the high spots of the oil business."

Following the banquet, President Dilling corraled the mill men for the first session of practical discussion, which was opened with the general question of cotton mixing. The president first called upon J. O. Wilson, superintendent, Guadalupe Valley Cotton Mills, Cuero, Texas, to give his method of mixing.

"We still use the same old system at our mill that we were using the last time we discussed this," replied Mr. Wilson. "We have a crowded condition so that we cannot improve it very much. We have our different grades of cotton brought in and opened up. With our compressed cotton we have been opening it when it was put in the warehouse, taking off all of the bands but one or two and leaving it there for two or three weeks before running it into the picker room. We take our different grades, putting a good one by a low one and then feed equally off of each bale into the bale breaker."

Mr. Coman of Mexia next discussed the subject. "We have the same way that most of you use. We take our cotton and bring it along as to grade. It is all sampled and we have a certain mix that we use and bring it around the bale breaker and feed from each bale. We tried making a mix in bins that would last about two days, but we find for our work we could get just as good results by opening the cotton directly around the bale breaker and feeding from each bale in order. We keep the mix as regular as possible, using the same number of bales of each grade, and we also try to keep the staple as uniform as possible. We use some loose cotton, and you know you get a little bit of everything there. I think the best way of mixing really is to spread the cotton out in a bin and make a mix that will cover several days' run, but we do not have the room, and really for our grade of goods we get just as good results the way we do it."

The president asked Tom Nation, overseer of carding at Itasca Mfg. Company, Itasca, Texas, if he did not find it harder every year to get a mixing that would produce the grade of goods desired by the mill and customer, and Mr. Nation agreed to this. Then began a general discussion of cotton grades and staples, the consensus of which was that the cotton secured during the last year from the drought-stricken areas was not up to that purchased from other sections from the standpoint of staple or grade. A good many of the men complained that cotton from these sections caused them considerable trouble in manufacturing, and G. M. Lance, night superintendent, Hillsboro Cotton Mills, Hillsboro, raised the point if there "isn't also something in the manufacture of this cotton."

In this connection, S. A. Moak, overseer carding, Dallas Textile Mills, Dallas, pointed out that "there are certain ways you can set your machines to give you a better breaking strength. There are a lot of men in Texas that are not up to the job. For instance, the card in Texas is a thing that is almost abused. In the first place, it is speeded too high, and when you do that you cannot expect to get the proper kind of yarn. There are very few mills in Texas that have the proper speeds on the doffer. Mexia and Fort Worth do, but most of the mills are speeded too high."

The next question asked by President Dilling was, "What is the best method of re-working card and spinning room waste?" Mr. Moak answered this also, saying that he has a process of taking the spooler waste and waste filling from the bobbins and running it through a waste machine and carding it and then taking it back to the cotton mix; in feeding this he puts in ten pounds of waste to a hundred pounds of cotton, starting at the top and feeding right straight down.

W. F. Smith, superintendent, Waco Twine Mills, Waco, stated that he takes everything in the way of waste, mixing it with low-grade cotton and making a No. 3 twine out of it. "We mix about 25 per cent card strips, fly, sweepings, etc., with about 75 per cent of West Texas low grade cotton, and make this low grade twine out of it. For our better grades of twine we use the regular mixing of cotton."

In regard to this subject, Mr. Coman declared that "frankly, we burn our motes and fly. We do not find it pays us to willow them when ¾ of a cent a pound is the best price we can get for them. If they are not worth more than this to the mattress factories, we cannot see that they have any value to us, and I think that the mill is fooling itself when it puts back motes, etc. We do, however, try to use our soft waste, and we have a machine that thoroughly opens it up, and we feed that back of the openers. We also put all of the strips back in, but we put it back of the bale breaker and distribute it out over the entire day. We have at present no way of re-working our hard thread waste, although we are investigating that at the present time and hope to do something on it soon."

"How many men here clean the strips before running them?" asked the chairman. Two indicated that they do not clean them, while five answered in the affirmative. "I have been experimenting with cleaning strips," continued Mr. Dilling, "and have made some tests on the stuff that came out. "We have run six or eight bales and figured about thirteen per cent coming out. I feel like it is well worth the time to clean them. We run them through the cleaners, and make them into a lap and bring these back to the openers. We used to feed them in with the regular cotton."

"We mix our waste a little differently," said E. L. Goeble, overseer of carding, Hillsboro Cotton Mills, Hillsboro. "We run all our thread waste back and tear it up on the Crighton and willow machine and take it back to the opener room. We take the clean fly, etc., through the willow and when we mix the waste we run it separately. We run the strips, etc., through the vertical opener. Then we take it all and run it through the pickers and out through the cards onto the floor and then we mix it in with the regular cotton."

"In regard to waste mixing," said Ben Edney, overseer of carding, Belton Yarn Mills, Belton, "we do not run card motes and fly, but on the spinning room and fly frame waste, we carry it back to the opener room and run it through a Saco-Lowell waste machine and mix it in the opener half and half with cotton and make a lap and then run one of these to three good laps on the apron of the picker."

The next question pertained to methods of cleaning low-grade cotton, and Colyar S. Tataum, superintendent, Consolidated Textile Corporation, Bonham, was asked to discuss it.

"I do not believe we have anything very different," responded Mr. Tatum. "We put all of our cotton through two vertical openers in tandem, and then it passes through five sections of English cleaning trunk and then through three processes of pickers and the cards in the regular manner. We work very little low grade cotton at Bonham, but I might backtrack a little, as some of us are doing and discuss our methods of mixing. We have experimented as much as anybody on everything that has been brought out.

"I have tried mixing our cotton in piles, but our space

is too limited. We tried opening thirty bales around the vertical openers in such a way as to feed off in order, and we tried to distribute the Strict Low Middling bales uniformly. Up until recently we had one man to feed the hoppers, but he had a hard time getting some cotton off of every bale at a time, so we have added another man and have these two fellows feeding the vertical openers. We give them a wire basket and make them keep a little off of all the bales in the hopper at one time, and it seems to have helped the breaking strength. They break the cotton up into finer lumps—a little handful from each bale."

The next discussion pertained to the use of spraying oil on raw cotton. Mr. Dilling asked those who had discontinued the practice to relate their experiences. Hugh S. Clarke, superintendent, Miller Cotton Mills, Waco, stated that he had used the oil according to Hoyle, but that he was not at present applying it on his raw stock. "It is the queerest thing I ever saw," he said. "It would keep the card room cleaner, it would keep the cards and other machinery cleaner, and the sweepings were reduced about one-half, but in the spinning room you'd think a snowstorm had hit it."

"We are just experimenting with oil," added Mr. Tatum. "I never have thought much of the theory, but we had a lot of trouble with static in the card room, and the hands would squirt oil on the backs of the laps, so I thought maybe there was some virtue in the process after all, and therefore I ordered this equipment, and put it in; however, we used it a little different from the other people. We did not use their equipment except the pump. I took the newer type humidifier heads—on the order of the old head but just a simpler type—and put one of these in the English cleaning trunk. The oil companys' man claimed that it wouldn't work because it got oil on the bottom of the pipe, but when I explained that the trunk had grids in the bottom of it, he saw the point.

"Our method of applying it seems to me to be fine. The beauty of it is that the cotton is all opened up as it has just left the vertical opener, and you can put more pressure behind it and it is confined to the pipe and gets on the fibers of cotton uniformly. We did get the oil on there very uniformly. We used about one half of one per cent. It cut down the fly and we did not have any more static. We have found no improvement in the spinning room, but I didn't notice the 'snow-storm' that Clark was speaking about. The yarn didn't break any stronger or weaker. I found no distinct advantage except that it did cut down the card room fly—but it also did cut out static. Then I left out the oil and we were not bothered with static, but I think the reason was I waited until the static season was over. We have cut out using live steam; it rusted the card flats. I do not know whether we will continue to use the oil or not, but if anyone wants to experiment I would recomemnd the system of application I have outlined."

"I am like Mr. Clark," said Mr. Dilling. "I think it is fine in the card room, but it does cause that 'snow-storm' in the spinning room."

Mr. Edney said the difficulty he had found with oiling the cotton was that, while it kept the fly down, he did not get a good web from the card.

Leaving this subject, the next question was asked by K. G. Greening, of the Houston Textile Mills, Houston, who wanted to get some information with reference to the use of an up-stroke beater preceding the vertical opener, desiring suggestions regarding speeds, settings, etc. This was not answered, although Mr. Dilling stated that "we have recently installed a porcupine beater in front of the vertical opener. I put that in there in order to tear the cotton up in smaller pieces before going to the vertical opener. It would surprise you what it will do."

The president next asked for experiences as to "the advantages to be gained by drawing more than usual between the fourth and third rolls, and between third and second rolls, and correspondingly less between the first and second rolls on drawing frames." He asked Mr. Poole to discuss this.

"We changed over probably eight years ago, more as an experiment than anything else," he replied, "but the results we obtained were very satisfactory, and we just continued the system. We got an evener strand and more uniformity in our roving weights—that is yard for yard throughout the entire bobbin. Other than that I do not know there is any advantage. In fact, I have not gone into any experiments to determine whether there were any other advantages. Up to the present time I have not gone back to the previous method."

Mr. Edney stated that they could not see any difference in the two methods so far as results were concerned.

W. H. Gibson, manager, Gibson Supply Company, Dallas, formerly a Texas superintendent, stated that at Waxahachie he had spread the back set of rolls, and had never gone back to the former practice. Mr. Goeble reported the elimination of hard ends by doing the same thing.

"I do not know why the shops do not put them out that way," said Mr. Dilling. "They all have a little break draft, but I believe if you will distribute the draft instead of taking it all between the front and second rolls, you will get a little more even results."

"We have been experimenting with that," said Mr. Tatum. "I have made several hundred tests. We first changed the setting using three teeth between the back and third rolls and about as much between the third and second rolls, decreasing between the second and front on the drawing. Then we changed two teeth on the slubbers and intermediates. We changed one drawing frame and one slubber, and it almost shut the spinning room down. I have been experimenting with a less amount of break draft and we are getting better results. You can overdo that break draft proposition, but if you only have two teeth on the drawing and one on the frames I find that a good deal more even yarn will be produced, but a breaking strength below the average will result. On the drawing I cut it down to two instead of three and ran that through, leaving the frames normal. I got less variation in weights, but less breaking strength."

The final discussion of the evening referred to the question of one- versus two-process drawing, which was very brief, and indicated that practically all of the men present favored the two-process method for drawing.

The Saturday Morning Session.

The discussion was resumed at the next session, which was held in the National Theatre beginning at 9:30 o'clock. President Dilling asked the first question, "What are the best methods of keeping weights of roving and yarn uniform? What variation do you have in yarn sized from different frames?" and asked J. M. Fowlkes, overseer of carding, Miller Cotton Mills, Waco, to discuss it.

"From frame to frame I have quite a bit of variation at times," replied Mr. Fowlkes. "We try to keep our weights in our laps. We do not change very much on the intermediates, but we run by the moisture. When it is dry—we are supposed to run a 42 pound lap—we lighten up, but if the moisture is as high as 60 per cent, we run the laps up to 46 and 47 pounds. We keep our weights more uniform than we have ever been able to do before. We have some variation from one frame to another, and I cannot understand why it is. Sometimes our frames will vary three or four grains in one weighing, and the very next time from the slubber it will be uniform."

"Well, on what process do you do your weighing?" asked the president.

"On the speeders and drawing," answered Mr. Fowlkes. "I have very little variation on the drawing. We are running two processes, and it seems our variation is more between the slubbers and intermediates. It runs very even on the fine frames.

"I tried one process of drawing, although we did not cut our speed, leaving it at 350 r.p.m. I thought it would be even, but when it got to the intermediates it became lumpy with thin places in it and I dropped back. I feel if we could cut the speed on the drawing it would probably be better."

"I find in keeping numbers the greatest point is to make an even lap," declared Mr. Goeble. "You might go ahead and say you are making a 45-pound lap, and possibly you might be making it, but your eveners mightn't be in action, and you would have a heavy yard and a light yard in the laps.

"I usually get a yard or two throughout the lap and see whether I am making an even lap. You take most of the eveners today—they do not act very freely. If the fulcrum is set too wide it is a slow movement, and the shorter you can set it—I believe 4½ is the shop standard —the quicker the action will be, and the further out you open it the slower the evener belts will move; therefore, if you strike a lump it will throw the evener belt too hard, and it will make the lap heavy and light."

"I think the biggest opportunity we have for improving uniformity of our weights is in the opening room," said Mr. Clarke. "The cotton should be thoroughly opened and stored and handled in such a way that every particle of that cotton has the same amount of moisture in it. You shouldn't run through a few hundred pounds of cotton that contains eight per cent moisture and then run some through with two or six per cent, because they will not draft, and handle the same, and will not give you even weights.

"I think in the picker room, a big trouble is in carelessness in maintaining the condition of our pickers—especially the evener motion, which must be kept clean and tight and well adjusted.

"On the cards, of course immediately after stripping with the hand roll stripper you have bad waste, but my experience is you can do whatever you please, but I have never been able to improve the uniformity of the weights by working at it there; after it is scattered out on the drawing frames it is just about as even if you let it go there, as if you tried to control it."

"You strip all at one time then?" asked Mr. Dilling.

"We start at one end and go right on through in order," said Mr. Clarke, "four times a day. I think uniformity is something you must stay in behind and fight for all the time, but it is in proportion to the care and diligence with which you keep after your machine."

"Well, what do you think is the proper pace to govern the weights?" inquired the chairman.

"I think conditions vary there," answered Mr. Clarke. "For instance, we weigh our laps and card sliver and all of our drawing, and also the roving from the intermediates, and we change on the intermediate frames, but we weigh from the card sliver and drawing sliver as an indication or prediction of what we will have to do. In other words, we do not wait until we are up against it to make the change."

"Ever change in the spinning room?" asked Mr. Tatum.

"Not on the warp, but we keep the weight of the cloth by changing the filling," responded Mr. Clarke.

W. B. Hollingsworth, overseer of carding and spinning, Mexia Textile Mills, Mexia, spoke next, saying that "the way we keep our weights uniform is to watch the laps in the picker room. When it rains we run them a pound on the heavy side and then when it dries up we drop back. I do my changing on the front drawing. I do not bother my intermediate frames or slubbers or spinning unless it is an extreme condition."

"What does the variation run on speeders?" Mr. Dilling queried.

"I never have figured it out," answered Mr. Hollingsworth, "but about two grains in the intermediate roving from one frame to another. We go for weeks and never change the intermediates by keeping the weights in the picker room and on the front drawing."

Mr. Goeble asked here if anyone had found any difference or variation in the roving on the front and back spindles on the fly frames, pointing out that any difference here was probably attributable to the difference in the distance between the front rolls and the ends of the flyers.

"I have tried different ways of keeping weights, but I find it best to keep them in the picker room, so far as possible," added Mr. Hollingsworth.

"That has always been my idea of the proper place to keep the weights," commented President Dilling.

O. M. Peters, superintendent, Waxahachie Cotton Mills, Waxahachie, next discussed the matter of keeping weights, declaring that one of the biggest factors was the proper selection, grading and blending of grades of the cotton. He also pointed out that a good scheme is to have the yarn boxes marked by dates so that it is possible to ascertain when any certain lot of stuff was made.

The president next called upon Don D. Towers, agent, Worth Mills, Inc., Fort Worth, Texas. "We have been doing more or less fooling around on this question," he replied. "Right at the present time we are working everything on a bone-dry basis. We weigh from the drawing and slubbers twice a day and base everything on the bone-dry weight, and from there on we 'let 'er go, Gallagher.'

"I find it is working out very nicely. Sometimes the yarn will run heavy in the spinning room, but when it gets to the finished fabric, it would be all right."

"You get your weight and dry it out?" inquired the chairman.

"We take the actual samples from the drawing," explained Mr. Towers, and then carefully weigh them, and then put them in the oven and dry them bone-dry, and we base our changes on the bone-dry weight. We find the regain will run from five up as high as nine per cent, but the bone-dry weights do not change very much. If we

do get in a lot of cotton that draws too hard, we have a gear on the front drawing and one on the slubbers to take care of it. Some friend of mine wrote me that the mills in the East were using this bone-dry method and so I began trying it out." Mr. Towers added that the variation in the moisture is from 5½ to 8 per cent in 24 hours. "It looks like this is a scheme that has great possibilities."

"What degree of heat do you bring that too?" asked Mr. Dilling.

"To 220 degrees for two hours," said Mr. Towers. "It takes that on our twisted yarn. On loose cotton and sliver however, you can reach the bone-dry state in an hour and twenty minutes.

"I think we have learned something from Mr. Towers that we have not been doing," said Mr. Dilling, "and I believe it is possible to experiment along these lines."

"I think this is the most important subject we have on our program," declared Mr. Tatum, "and I do not think we can take any too much time on it. I agree with a great many things that have been said. I agree very heartily with everybody who says start in the opening room because I had some very vivid illustrations of just what you can get by varying the conditions in the opening room. We recently mixed it in a large pile and then we got back to the old system of opening the bales around the opener, and each time we would have to change at least three teeth on the speeders. In a pile, the cotton dried out more, and then it was heavy, and when we changed we would have to lighten back again, which is very conclusive evidence that this will affect the weights very materially. So I think we should be particular to have the cotton properly mixed and mixed the same all of the time, selecting the staple and grade.

"I think after we get into the opener room, we must keep the same amount of cotton in the hoppers at all times. We have an automatic method of doing this which regulates it. Then we should keep the evener motions cleaned and oiled regularly, and we find on account of the fact that we have no humidifiers in the card room that it is necessary to adjust our weights on the finished lap to conform to the variation in the percentage of humidity. In other words, we run our laps on a wet day a pound heavier than we do on a dry day.

"Now, when we come to the cards, we do have a system of stripping every other card. We let them run long enough after stripping to even up the weight. If you do not remove the light sliver after stripping you will have a variation in the numbers, so I think we ought to be very careful about that.

"When we come to the drawing, the important thing is the method of creeling the frames. I would not think about running drawing other than creeling a frame all at one time. If you wait until the cans run out you make splicings that cause thick and thin places.

"Some of you have brought out the point that finisher drawing is the proper place to make the changes. I think the reason for that is because it is a well-known fact that we have the smallest percentage of variation there than anywhere, and looking at it from that standpoint it seems logical, but we do not use that method for the reason that we have no humidifiers in the card room, and in case of weather variations we find that even if it might be right when it left the finisher drawing, it frequently varies before it gets to the spinning frame, we have two or three days stock on hand, every time it changes outside the stock changes, so we change on the speeders, but we realize we are likely to get a wider range of variation. One thing we do, though, is to test from half-full roving, and we do this twice a day, always about the same time of day.

"I think the point brought out by Mr. Towers is absolutely fine, and I wish I had one of those ovens.

"We never make any changes in the warp numbers, even though we do try to hold the weights on the speeders. If it is damp we lighten on the filling to control the weights.

"The sizing process is also important in cloth variation, and it can cause you considerable changing in the filling numbers."

J. V. Hunt, overseer of weaving, Brazos Valley Cotton Mills, West, discussed the advantage of the bone-dry method of sizing from the standpoint of the weaver, and Mr. Poole also commented upon its value.

Mr. Dilling next asked for experiences as to the relative merits of band and tape drive for spinning.

In discussing the advantages of tape drive, Mr. Hollingsworth said, "with the tape driven frame you can get more yarn on the bobbin and get away from tangled yarn, and you do not have as many spindles stopped for banding, and there is a little more evenness in the twist."

J. G. Coman, Elected President.

"I don't think there's any comparison," said Mr. Clark. "With the tape drive you have an idler pulley that maintains the same tension on the tape all of the time, and if this is working freely you should get uniform twist. So far as the number of tapes we buy is concerned, our tape bill is negligible. I should say that fifty pounds of tape will last us four or five months."

"I don't think there is any doubt but what the tape drive is far ahead of the band drive," said Mr. Dilling. "I think the tape drive will show up to advantage especially on napped goods, because with the band drive, the hard filling shows up in the goods."

"My experience has been on the band drive altogether until I came over here," said Mr. Coman. "I find here we get this difference—we get a much more even twist, we have practically no soft yarn and very little tangled yarn.

I do not think there is any comparison at all. You get a world of soft yarn with the band drive, and lots of uneven twist from loose bands.

"We find it a good idea with the tape drive to take out the wooden bearings on the idlers and clean and re-oil them about twice a year, cleaning them out once a week.

"I think the biggest objection to the tape drive is the trouble you have in getting the idlers adjusted to where the tape will run properly."

Mr. Lance said that on tape drive he has trouble on filling wind with the bobbins slipping, which he thinks is caused from the bobbins wearing on the spoolers so they will not fit the spindle on the spinning frame. Mr. Smith reported a similar trouble due, he believed, to out-of-the-ordinary size rings, and stated that this could be eliminated by using the new type spindle with the clamp.

The president next asked for "a general discussion on ways to reduce the number of rollers used in the spinning room." Mr. Peters suggested one cause of large roller bills is the lack of definiteness in fixing the responsibilty upon the operative for a bad roller.

"The best remedy for choke-ups that I know is to keep the rollers lubricated and cleaned," said one member.

Mr. Lance brought out the importance of using the proper grade of cot.

"What kind of flannel gives the best results?" Mr. Tatum asked.

"That depends on the class of yarn you are running," replied Mr. Moss. "Mr. Towers here gets best service using a thick firm flannel, but for most of the mills in Texas, Dewey's tweed has been most satisfactory."

"I think the biggest thing that affects the number of rolls used is the way the work is running," Mr. Tatum declared. "If you want to keep the roller bill down you have to keep the work running good. You must keep them oiled and cleaned properly.

"We have our fixers to cut the flannels off. We do not let the roller man pass on that. We figure that human nature is too frail, and that he will use everything he can and give the old flannel the benefit of the doubt and leave it on."

Mr. Lance asked "Is anyone here using calf-skin rolls? I have a brother running a mill in Arkansas who tells me he is using calf-skin and has cut his roller bill down to half of what it was with the sheep-skin."

"Mr. Poole is using calf-skin in the card room," answered Mr. Moss, "but he is the only one in Texas using it at all that I know of."

Asked to give his reason for using the calf-skin, Mr. Poole said that it was for economical purposes; that under the conditions prevailing at Sherman, he found it more satisfactory.

"How long have you been using it?" he was asked, and the reply was about six years.

"Have you tried it on the spinning?" asked Mr. Lance.

"No, I have not," Mr. Poole replied.

As to the cost, Mr. Moss furnished the information that it is about double the price of sheep-skin.

"I find I get a longer life with it," said Mr. Poole. "The calf-skin is solid and firm, and you can get a better draft with it, and it will last twice to three times as long. In my opinion, local conditions have more to do with the rolls than anything else; the class of cotton, grade of goods, etc. And then other conditions might exist that affect it. Under the condiions at Sherman we satisfied ourselves as to the economy of using calf-skin instead of the sheep-skin."

Mr. Moss asked why it was that sometimes, when cutting leather for both sides of a roll, one would rough up and the other remain perfectly smooth. Mr. Peters suggested this might be due to the difference in size of the steel rollers.

In bringing up the final question—that of safety organizations—Mr. Dilling wanted to know "why is it that our insurance rate is twice as high as it is in the mills across the river?"

"I went into this question of why the Texas compensation insurance costs more," said Mr. Clarke, "and the main thing is we get more insurance for our money. Insurance is like any other commodity. Our employees get 60 per cent of the normal wages and begin drawing that in eight days; the Carolina hands get fifty per cent in two weeks time. Also, there is no limit to the hospital and surgeon's fees in Texas. Regardless of what it is, the insurance companies must pay it. So we are getting our money's worth.

"But there are a great many mills not getting the rate they should get because they are not going into the proposition of safety education. Last year we paid $1.27, which was mighty high, and at the beginning of 1925 I set my head to cut down that cost, and I had two men from the insurance company to come and talk it over and they told me what I could do.

"We now have a safety organization which meets once a month and we hold discussions and keep written minutes and go into it earnestly. I found one of my overseers didn't know what a tourniquet was, and yet two years ago a girl cut a vein in her right leg, and he wouldn't have known what to do. I found very few of them knew what to do in the case of a slight scratch."

This safety organization, Mr. Clarke said, gave him five per cent credit on his rate. He added that the overseers take turn about making a thorough inspection of the plant from a safety standpoint, and as a result of the campaign, he has so far reduced the rate from $1.27 to $1.20, and based on his experience so far in 1926 the rate will be reduced still further.

Coman, Tatum and Poole all reported similar safety organizations; in the case of Sherman a full-time nurse and community worker is employed.

The session was concluded by some remarks by E. M. Holliday, overseer of finishing, Planters & Merchants Mill, New Braunfels, who urged the mills to pay more attention to the concluding processes in the mill.

The final feature of the meeting was a luncheon served at the Lion-Tarian Inn, with Mr. Coman as toastmaster. Robert W. Philip, associate editor of COTTON, Atlanta, Ga., and C. E. Reid, of the General Electric Company's Dallas office, gave a skit entitled "Nonsense," following which a splendid musical program was rendered by local artists. After the luncheon, officers for the coming year were elected by the association. J. G. Coman of Mexia was made president; D. D. Towers, of Fort Worth, first vice-president; J. V. Hunt of West, second vice-president. Dan H. Poole, of Sherman, was again re-elected secretary and treasurer. Fort Worth was selected as the place of the next meeting which will be held some time in October.

Towels and Toweling

BY THOMAS WOODHOUSE AND A. BRAND.

Winding Machinery for Filling.

In the weaving of towels and toweling, the form in which the filling is used depends upon a number of factors, chief amongst which are the fiber of which the yarn is composed, e.g., cotton or linen, and the practice of the district as regards the use of cops, pirns or half-pirns. Generally speaking, the cop form is used in the case of cotton yarns and coarse linen yarns, although a considerable quantity of cotton on mule cop is re-wound onto pirn bobbin; pirn

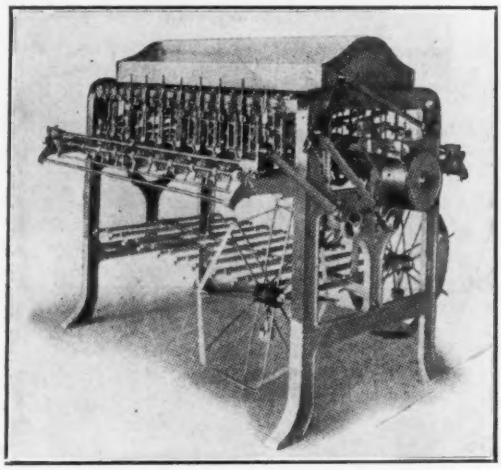

Fig. 112.

bobbins are used in the case of fine linen yarns, while half-pirns are chiefly used in certain types of automatic looms, although they are occasionally used in ordinary looms.

The tendency in modern linen establishments is to use the cop wherever possible, chiefly because it can be produced at a faster and therefore cheaper rate, and because a greater length of yarn can be put into the same size of shuttle. There is also the added advantage that the comparatively expensive wood cones—bobbins or pirns—are not required when cops are used.

Figure 112 illustrates a typical example of a linen pirn winding machine as made in England. It is specially designed to wind linen yarn from the usual 90 inch hank, or,

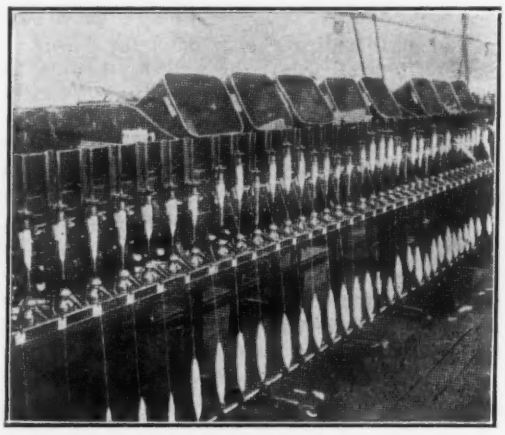

Fig. 113.

in the case of fine yarns, the 54 inch hank, on to wooden pirns. The shaping cup, in which the conical end of the pirn is formed, is inverted, i.e., the large diameter is at the bottom, and the pressure of the pirn against the cup can

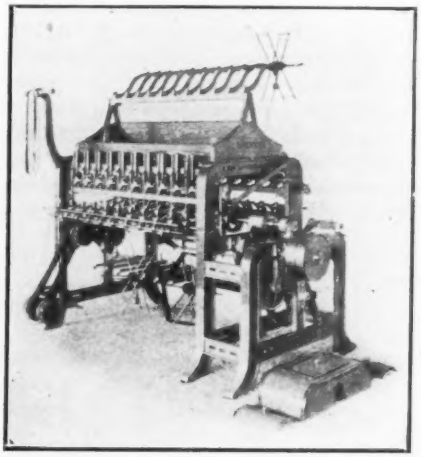

Fig. 114.

be readily regulated, the smaller range of pressure being necessary for the finer yarns.

Figure 113 illustrates a very similar English machine for winding cotton weft from mule cops to the above-mentioned pirn bobbins; in this particular machine, the tension on the yarn is obtained by the well known ball-drag.

Automatic stop motions are fitted which stop the spindle when the yarn breaks, and, if desired, when the pirn has been filled to a desired length. The latter motion can be adjusted so that the machine will wind pirns of any length within its range. The maximum length is usually about 7½ inches. Provision is made to keep the yarn speed constant by driving the spindles at a speed which varies in inverse proportion to the diameter upon which the yarn is being wound. This feature permits of higher speeds being attained with fine and tender yarns. The maximum spindle speed is between 800 and 900 r.p.m.

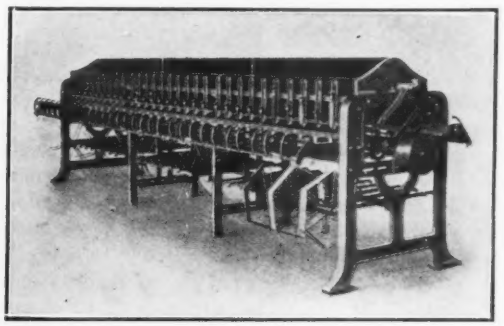

Fig. 115.

Figure 114 illustrates a British patented pirn winding machine which winds cotton or linen yarn from the hank on to wooden pirns or paper tubes. It may also be arranged to wind from cop, bobbin, or cheese. The chief feature of the machine is that the yarn is laid in position

on the pirn or tube in contact with a revolving cone. There is thus no rubbing contact with the yarn, and all adverse frictional chafing of the yarn is obviated.

The spindles are driven from cast-iron grooved pulleys mounted on a central shaft, and a patent differential motion is employed to equalize the speed of the yarn from the hanks; while an automatic stop motion is fitted to each spindle. The spindle speed when winding from the hank is about 1000 r.p.m., and when winding from cop or bobbin may be from 1500 to 2000 r.p.m.

A patented cross-wound cop machine, by the same makers, is illustrated in Fig. 115. It is intended to wind yarn from hank or cop on to the bare spindle or on to half-pirns or cone bottoms, without any friction on the yarn. In other respects, it is similar to the machine already described with reference to Fig. 114. The spindles run at from 700 to 1000 r.p.m.

Warp Winding Machinery.

There are two forms into either of which the warp yarn may be wound preparatory to being placed in the creel or bank of the warping machine. These are respectively the bobbin, and the cheese, spool or roll. The latter, known by all three names, is displacing the former in many branches, chiefly because of the cheapness of the wood or paper spools as compared with flanged bobbins, and because of the greater length of yarn contained in the same space. Bobbins are still preferred by many users where colored yarns are employed. Generally speaking, however, it requires a strong yarn to withstand the stresses induced by the quickly reciprocating guide mechanisms

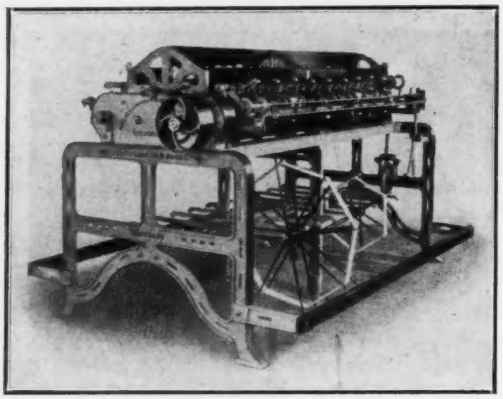

Fig. 116.

employed in cheese winding machines, and the bobbin still holds its own where fine and delicate yarns have to be wound.

Figure 116 illustrates a double drum winding machine. This machine may be arranged to wind from 54 inch cotton hanks or from 90 inch linen hanks on to flanged bobbins up to 5 inch or 6 inch traverse. The yarn guides and clearers are adjustable, and are operated by an improved form of mangle wheel traverse motion. The bobbin holders are fitted with a latch and catch device which holds the bobbin spindle and bobbin in position on the winding drum, and which requires only one hand to operate. The pulleys are mounted on the drum shaft, as seen in the illustration, and run at about 200 r.p.m.

Figure 117 shows another form of machine by the same maker which winds the yarn on to warping bobbins from the cop or bobbin. It is of the vertical spindle type, and is fitted with a swivel flannel board and continuous yarn guides. It is made in various pitches up to 200 spindles per side, and may have a traveling apron, clearing plates, brushes, and other accessories, as desired by the user.

A split drum cheese winding machine is illustrated in Fig. 118. Each drum is independent of its neighbors, and is driven by a grooved iron bowl mounted on a central mainshaft. The cheese spindles are fitted with a barrel (or balloon) spring to secure the tube or spool in position on the spindle, and the spindles are held in their holders by a latch and catch device. The driving shaft bearings are adjustable, to provide a means of tensioning the driving bands, and two-speed pulleys, giving a choice of yarn speed, can be fitted to each drum.

Warping Machines.

In the manufacture of towels and toweling, warps for the loom are produced in the same manner as for similar weights of cloth in both cotton and linen practice. In general, sectional warping machines are employed to produce a series of beams, each containing an equal proportion of the total number of warp threads ultimately required in the fabric. The number of beams thus provided in the case of linen fabrics is usually an even number, and half of them are placed at each end of a linen dressing

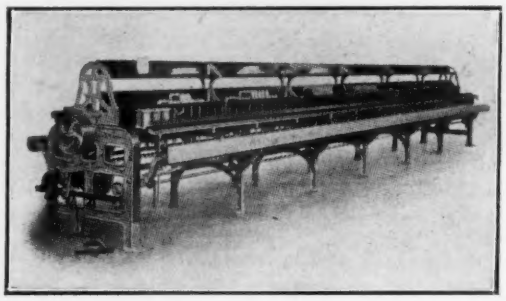

Fig. 117.

machine, in which they are starched, dried, and wound on to the weavers' beam. In the case of cotton fabrics, the number of warping beams may be either odd or even. The full number of beams is placed at one end of a slasher sizing machine, which starches and dries the yarn, and winds it on to a weaver's beam placed at the other end of the machine.

Figure 119 is reproduced from a photograph of a warping machine of the ordinary type. The warp yarn, either in the form of cheeses or bobbins, is placed on spindles running on suitable bearings in the V-creel. The number of ends or runners per beam may be from 500 to 1200, but seldom exceeds the former figure in cotton and linen practice; indeed the number is more often below 400 than above. The creel may be fitted with the maker's patented brake wires, which are suitable for either cheese or bobbin, and which prevent the cheeses or bobbins from over-running when a stoppage of the machine occurs.

The machine is driven by means of a friction clutch, which is engaged by a downward pressure of the footboard seen in the illustration. The clutch mechanism is coupled to the rollers of an automatic stop motion, actuated by droppers each of which hangs on a warp thread. When a thread breaks or the yarn on a bobbin is exhausted, the dropper falls between two rollers driven at a slow speed. The passage of a dropper pushes one of the rollers out of its normal position and releases a catch which disen-

gages the clutch.

The driving drum may be of a fixed width, or it may be made adjustable to suit various widths of beams. Similarly, the guide reeds may be of the ordinary fixed variety, or they may be one of the many varieties of expanding reeds now available. The measuring motion can be arranged either for yards or meters, and they may also have an independent indicator which stops the machine when the desired length of warp is attained. The measuring is done by a tin guide roller made exactly ½ yard (or ½ meter) in circumference, and connected by a suitable train of gearing to the "clock" or indicating mechanism.

The driving speed is about 50 r.p.m.

Sizing and Dressing Machinery.

The term "sizing" is more generally applied in the cotton industry, and the term "dressing" in the linen in-

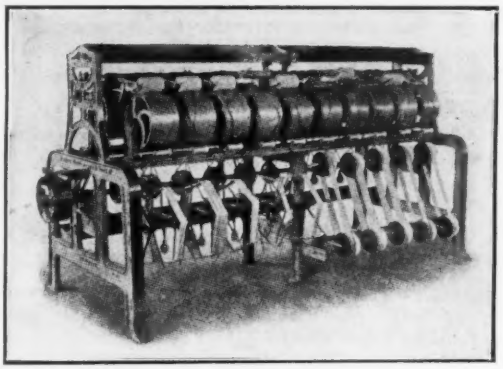

Fig 118.

dustry; "slashing" and "taping" are other words used in the cotton industry, but all have reference to the starching of the yarn on the warper's beams in machines which perform simultaneously the combined operations of starching, drying, beaming and measuring the warp as wound on the weaver's or loom beam.

In both cotton and linen practice, it is still common to dry the yarn by passing it round large diameter steam-heated cylinders. The close contact with the hard-heated surface of these cylinders has a tendency to flatten the yarn, and render it liable to scorching, and the more modern practice is to use some system of hot air drying.

A hot air sizing machine was fully illustrated and described in an article on this machine beginning on page 1117 of the September, 1924, number of COTTON.

Creels or stands accommodate six warper's beams, or more could be provided for if necessary. The sowbox or starch box adjoins the last warper's beam, and the warp threads from all the beams pass through or between the starch rollers where the threads are impregnated with starch. Then, instead of passing over steam-heated cylinders, the threads are conducted through the hot air chamber near the middle of the machine, from which they emerge dry and are finally conducted to the weavers' beam, upon which they are wound in the usual way. The machine is fitted with all the necessary apparatus for measuring, marking, pressing and the like.

On a linen dressing machine the creels or stands each accommodate two warpers' beams, but stands may be supplied to suit any reasonable number of beams. The yarn from each set of warper's beams pass through guide-reeds to the starching rollers, the lower one of which rotates half immersed in the starch, while the upper roller acts as a squeezing roller. The starched yarn is then directed through the bristles of a slowly revolving brush, and the latter distributes the starch evenly and lays all the outstanding fibers close to the body of the yarn. The sheet of yarn next passes over a series of gilled steam-pipes through which a current of air is forced by fans placed below. The heated air passes upwards through the yarn and thus the yarn is thoroughly dried before it passes forward to be wound on to the loom beam.

Great variety obtains in the sizing mixtures used, and there is need for standardization of practice in this respect. Farina, wheaten flour, corn starch, sago flour, and similar materials are used as adhesives, along with a proportion of tallow, grease, or similar preparation as a softening agent. Proprietary dressing substances are finding increasing application in both the cotton and linen industries. Thus, a 10 per cent mixing for light sizing may contain the following—

100 pounds Farina
20 pounds China clay
12 pounds Tallow

132 pounds solid substances in all.

The mixture, calculated to give equally satisfactory results is made up of—

60 pounds Farina
20 pounds China Clay
14 pounds Size Compound
5 pounds Tallow

99 pounds solid substances in all

and a decrease of 33 pounds or 25 per cent on the original mixture.

Besides this obvious economic advantage, further ad-

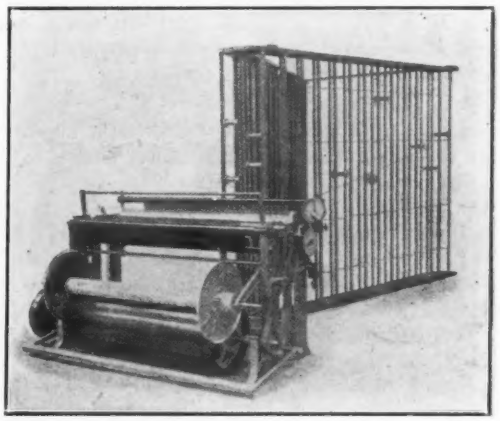

Fig. 119.

vantages are claimed in respect that the yarn remains soft, the size is absolutely neutral and penetrates to the heart of the yarn, colors are considerably brightened, loading agents are retained on the yarn, and there are less breakages in the weaving process.

(To be continued.)

If experience is a very expensive teacher, it does not follow that "the other fellow's experience" cannot be taken advantage of at less cost.

What the Southern Mills are Doing

A number of items of especial interest for this department are to be reported in this issue. Considerable interest attaches to the announcement that the Thomaston Cotton Mills, Thomaston, Ga., have entered into a long-term contract for tire fabrics with the B. F. Goodrich Company and the Fisk Rubber Company, and in this connection will erect a 35,000-spindle mill on a site near Thomaston which has already been purchased. Robert & Company are the engineers.

An extended expansion program at Cedartown, Ga., where a mill recently was purchased from the Cedartown Cotton & Export Company will be made by the Goodyear Tire & Rubber Company, it is announced. The name of the Cedartown plant will be the Goodyear Clearwater Mills, Inc. It is understood that manufacturing equipment will be removed from Passaic, N. J., and installed in an addition at Cedartown, which will be two stories, 500 x 140 feet. About 100 houses will be erected for operatives. G. I. Parmenter, formerly of New Bedford, will be superintendent.

Thomas Henry & Sons, Inc., cotton yarn manufacturers of Philadelphia, has been reorganized and chartered as a Tennessee corporation, and has purchased a site at Nashville, Tenn., where a yarn mill will be erected. It is understood that machinery will be removed from the present Philadelphia plant, which will be closed, this including 20,000 ring spindles for manufacturing knitting yarns. Also some 120 Jacquard looms for Turkish toweling will be removed to Nashville from Philadelphia. Robert & Company, Atlanta, Ga., are the engineers.

There were three important rumors current during the month. One was to the effect that the owners of the Globe Yarn Mills, Fall River, Mass., are contemplating the removal of their equipment to some southern location. The mill has about 33,000 spinning spindles.

John H. Boushall, First National Bank, Tampa, Fla., is reported to be interested in establishing a 5,000-spindle yarn mill at that place.

Gus Jordan, milionaire of West Palm Beach, Fla., visited Greenville, S. C., during the past month, and report had it that he is considering the erection of a mill at some point to produce a special construction of fabric especially adapted to water-wings and other similar uses at beach resorts.

It is reported also that the Fulton Bag & Cotton Mills, Atanta, Ga., are considering the purchase of the plant of John T. Milliken & Co., for the purpose of equipping it with textile machinery. The building is 5-story, of brick and concrete construction.

Two Barber-Colman high speed spooler and warper equipments have been installed at the Gainesville Cotton Mills, Gainesville, Ga., and preparations are under way for considerable improvements in the mill village, as well as the replacement of some old looms in the plant with newer models.

The new warping and slashing room of the Palmetto Cotton Mills, Palmetto, Ga., will be 72x90 feet. The company is also renovating the main building.

Unity Spinning Mills, La Grange, Ga., it is understood, will erect a new mill, 217 x 132 feet, for the manufacture of coarse yarns; also six warehouses, an opening room, and several houses in the village.

Al Culberson, vice-president, C. R. Miller Mfg. Co., Dallas, Texas, has announced that 5,000 spindles will be added to the Dallas plant of the company in Love Field, and that considerable increase in capacity is planned also at the McKinney division.

The Sunset plant of the California Cotton Mills, at Selma, Ala., the Canebrake plant at Uniontown, Ala., and their new plant at Canebrake, Ala., are being equipped with Fairbanks-Morse motors, it is reported.

Riverside and Dan River Cotton Mills, Danville, Virginia, have recently placed order for twelve additional sets of the slack sides preventor for the elimination of high selvages on section beam warpers, furnished by John C. Blackhurst, 61 Clara St., New Bedford, Mass., and intend equipping all of the warpers with this device.

Cotton-and-rayon bedspreads will be produced by the new Vogue Mills, Gaffney, S. C., which has an equipment of about 90 Jacquard looms for this purpose.

R. Z. Cates and MacFarlane L. Cates, of Spartanburg, S. C., have purchased the Enoree Mills, Enoree, S. C., and will assume control on July 7th. A $1,250,000 corporation will be organized to own and operate the mill, which is equipped with 33,760 spindles and 836 looms on sheetings and drills.

Mill No. 2, Carolina Textile Corporation, Dillon, S. C., are equipping the plant with Fairbanks-Morse ball bearing motors. Robert & Company, Atlanta, Ga., are the engineers.

New water tube boilers are being installed in the enlarged steam plant of the Chiquola Mfg. Co., Honea Path, S. C. This company has recently purchased 5,000 spindles of the Casablancas system of long draft spinning, for installation on Whitin spinning frames.

Twelve new broad Crompton & Knowles looms are being installed at the Milstead Mfg. Co., Milstead, Ga.

Plans have been completed for the bleachery to be erected by the Cliffside Mills, Cliffside, N. C. This will be 200 x 80 feet, two stories high, and will be constructed by the mill's own force.

The Millis Cotton Mills, High Point, N. C., have been bought by a new corporation, High Point Yarn Mills. F. M. Pickett, president and treasurer, and R. H. Walker, secretary, of the Pickett Mills, will be president and treasurer of the new company. The mill makes knitting yarns, operating 6,000 spindles.

Lola Gingham Mill, Stanley, N. C., was recently purchased at public auction by J. F. Anderson, of Jersey City, N. J., a bondholder. The mill contains 350 looms. John C. Rankin, of Lowell, N. C., is president.

It is reported that the Beacon Manufacturing Company is removing a complement of looms from New Bedford to its new plant at Swannanoa, N. C.

The new mill of the Shuford group, which is nearing completion at Granite Falls, N. C., will be known as the Allred Mill, in honor of J. M. Allred, superintendent. The building will be one-story, 400 x 100 feet, and operations will begin shortly.

F. A. Tomalino Silk Dye Works, of Germantown, Phil-

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ALKALI *and* BLEACH
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Textile Processing

TO deal regularly with a few dependable sources of supply makes for true buying economy in the long run. Purchasing from many and scattered suppliers may effect apparent savings from time to time, but these may easily be offset several times over by uncertainties, delays and lost motion.

Year in and year out, textile processors have found Mathieson a dependable source of supply for several of their most important chemical purchases. Among "Eagle-Thistle" products, the dyer, bleacher, finisher or mercerizer has available a group of products which he uses regularly and in quantity; Mathieson Liquid Chlorine or Bleaching Powder together with Mathieson Caustic Soda (solid, flake, ground or liquid), Soda Ash, Bicarbonate of Soda, Modified Virginia Soda or Aqua Ammonia.

The consistent use of both Mathieson Alkali and Mathieson Bleach is the best insurance against processing troubles.

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Bicarbonate of Soda
Anhydrous Ammonia

Soda Ash ~ Bleaching Powder
Modified Virginia Soda
Aqua Ammonia

Deal Direct with the Manufacturer

adelphia, Pa., will build a dye plant at Salisbury, N. C., to be known as the Southern Silk Dye Works. Operations will begin in August. The equipment will include a department for winding, coning and converting yarns.

Additional machinery will be installed in the plant of the Watts Manufacturing Company, Patterson, N. C., which was recently purchased by A. L. Watts, of Stony Point.

Roseland Spinning Mills, Inc., is erecting an addition in which 2,000 twister spindles, with reels and winders, will be installed. The company plans to change the mill from steam to electric drive, it is understood.

The New England Mill Situation.

Business has been running down fast in the mills during the past month and curtailment of production has been increasing. Fall River is running to scarcely 60 per cent capacity, and idle machinery in New Bedford amounts to 20 per cent of the equipment. In other sections machines are being stopped as orders expire although there has been no direct adoption of a united plan for reducing the output.

Profits have been greatly cut by the limited business offering at very low prices. Renewal orders for goods on the looms have not come forward as rapidly as in normal years. This is due to the lack of a normal volume of refilling orders for wash fabrics and other lines in the wholesale markets. The retail trade in many of the larger cities has been less than is usually expected at this season. The weather has been an adverse factor and has delayed and possibly deferred the distribution of many styled goods.

Manufacturers who have been carried far afield by the cry for more varied styles are beginning to feel the effects of losses sustained by converters and others who are trying to unload seasonably styled materials lest they may have to take greater losses later on. There is nothing in the way of permanency of style in the markets any more and there has been such a readiness to accept small lot business on odd constructions and new colorings that the market is not absorbing all new goods in the quantities necessary to prevent a backing up of unwanted lines.

Some of the more prudent mill men who have not been carried away by the forced style propaganda designed to stimulate a jaded demand are now in a more comfortable position as they have not accumulated their standard goods and have few if any styled goods to sacrifice.

Losses sustained in operation or lack of operation continue to stagger the more conservative textile mill financiers. A case in point was the last financial report of the York and Everett mills, both of them splendidly equipped plants for the manufacture of staple and dress ginghams. A combined loss of more than a million dollars following losses of similar amounts in the preceding year serve to arouse questioning as to the status of the whole New England investment. As a matter of fact, losses of this sort are offset in large part by profits in other plants where changes and readjustments have been made. The Pacific Mills showed a gain of more than $300,000 for the first quarter, the first showing for a year that has been pleasing to the stockholders.

During the month there was a struggle on to secure control of the stock of the Pocasset Mfg. Co., of Fall River, and it was finally passed on a basis of $25 a share. This corporation is one of the oldest in the country and its mills are located in the heart of the city. A liquidation of the physical assets of the manufacturing plant and real estate would bring far more than the sum represented in the purchase price of the controlling interest but investors appear to lack confidence.

Another instance is that of the Hamilton Mills of Lowell, where bad financiering brought about a crash several months ago. In the plans of reorganization presented to stockholders by creditors who were only interested in being paid back what was loaned, a plant worth $3,000,000 or more could be had for about $1,500,000. No one seemed to be able to arouse financial backing to carry the reorganization through at some of the recent meetings. Some mill engineers think it would take $5,000,000 to replace a plant like the Hamilton.

It ought to be stated of course, to explain the unusual situation, that depression has hit the woolen and silk mills as well as some of the finishing plants, and the fact that other sections are also depressed does not appear to help sentiment much.

The lesson that is common in all New England centers is the one of excessive taxation growing out of the acceptance for years of a false basis of assessment for municipal taxation purposes. It is a lesson that ought to be studied by manufacturers who have plants in other sections of the country, and who from time to time for methods of immediate policy may be induced to bear an unjust tax that can be used to set a precedent and eventually cramp all possibility of profitable industrial operations.

When mill towns were first established in New England and operatives were encouraged to build their own homes near the mills, it was accepted as a wise policy for mills to bear the burden of the local tax bill. Assessments were made upon mill properties that would not stand a strict legal test in a tax protest case but no one cared so long as workers were plentiful and content.

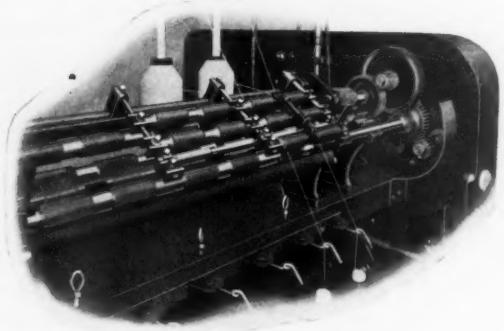
The war, with its attendant changes in the aspirations of mill workers, led to the adoption of costly municipal improvement plans, without a corresponding change in taxation policies that would serve to bring home to small taxpayers the folly of some of the expenditures that were going on. So long as mill profits were large, complaints of unfair tax assessments on mill properties were not important nor indeed, numerous. But the past few years of close profit margins in the markets have served to show that earnings are insufficient to pay both stockholders and tax collectors. The stockholders have had to wait.

This of itself would not be intolerable, if the plants were over-capitalized in any sense, or if stockholders were asking anything more than an ordinary bank investment payment as a steady dividend. As a matter of fact some mills are paying five per cent of their capital in municipal taxation, while stockholders are not getting a cent from the plants that are paying the tax. The owner of the property is not only getting no rental but is actually seeing his plant being depressed because it can barely pay its taxes after full time operations.

Mill owners as well as others having property interests in large mill centers are naturally pleased to see the wonderful expansion of municipal, religious, and school equipment, but few of them have reckoned the final cost. There are several mill cities in New England whose church edi-

SACO-LOWELL

LARGEST MANUFACTURERS OF TEXTILE MACHINERY IN AMERICA



SACO-LOWELL LONG DRAFT

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LONG DRAFT SPINNING

is a sound and practical method of reducing the cost of making yarn. The Saco-Lowell equipment is particularly well adapted to American practice. It is

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Montreal, Canada

fices, public and private schools, hospitals, public buildings, waterworks and fire equipment, are the peers of the best in America. This may seem a strong statement, but it is to be remembered that there are many New England mill cities that have several churches valued at much more than a million dollars each, (the value of a pretty good cotton mill), high schools that cost in excess of a million dollars, libraries from the common tax funds, and supported by them, costing over half a million dollars, to say nothing of the best roads, the best fire equipment, and the best hospitals of their class to be found anywhere in cities of like size or indeed of any size.

The maintenance of fine churches and semi-publicly owned hospitals falls indirectly as a tax on the chief industry in a mill town. In New England, because of the old system of laisse-faire in tax assessments, the cotton industry suffers most as it pays a proportionally large part of the tax while the private property owners escape the real burden they must eventually bear. For if the mills do not pay they will be shut up for good. But the cost of maintaining modern improvements will still go on.

While this phase of the mill problem of New England is not a present day matter for most of the southern mills, it is eventually going to become a part of the community life of trained operatives who will be wanted as time goes on. It is therefore worth while for the recognition of the fact that if the tax demands are to increase in keeping with modern notions of the rights of labor and the duties of employers, there is going to come a day of real industrial depression when a searching of hearts will be necessary if life is to go on.

There are some very wise mill owners and managers in New England who no longer believe that policies of cooperation, centralized control, and regulation of output in big or little industries is wholesome for the longer future of industrialism. Just now they are regarded as of no account. The days of American individualism in life and property management appear to have passed. In any event, the day is here when the stronger seeks to dominate and regulate the weaker for the benefit of the stronger one's interest only. Such a thing as making a condition that will allow natural laws of human nature and business operations to work themselves out untrammelled is not considered necessary. The government or business that governs or dominates least, no longer seems popular, yet fundamentally, Americanism was just that thing in the South, North, and West, not so many years ago.

The experiment of united curtailment of production in the South is being watched with curious interest by these old fashioned doctrinaires in the New England mill industry. From time to time in the course of their lives they have been driven unwillingly into the adoption of union plans to regulate wages, control production, etc., yet they have always had mental reservations concerning the wisdom of the plans of which they were a part. It is manifest that a lessening of production will bring about scarcity of product and enhance prices, for a time. But it will also continue to maintain in all its pristine vigor the hankering to build more mills.

Now, it is pretty unanimously agreed that one of the real evils in the textile industry has been the advance of production over consumption and the consequent narrowing of profits and opportunities, compared with other forms of industrialism. It does not take much money to build little mills that can be operated profitably for a time. Curtailing or regulating production by artificial means will certainly stimulate profits for a time, but after all, some experienced New Englanders are asking if it is the best policy in the long run of the years.

Cotton Comment.

BY H. AND B. BEER.

New Orleans, May 15th, 1926.

The market moved within a narrow range during the past month, values showing no appreciable change meanwhile owing to the bearish statistical position and the recent unfavorable labor developments in England offsetting the recent unfavorable weather inland.

Climatic conditions the past month were generally unfavorable for farm work and for germination of seed, especially in the western half of the belt, particularly in Texas and Louisiana where the precipitation was in excess of normal, but of late the weather has been better, especially in the eastern half of the belt, except that temperatures remain too low.

There is one redeeming feature of the present situation as regards the recent wet weather, and that is that Texas and Oklahoma, unlike last year, have a splendid season in the ground, and with fairly good weather henceforth, planting would make rapid progress and good stands would likely result.

TOTAL AVERAGE RAINFALL IN TEXAS.

Inches—	This season	Last season	Normal
For April	3.89	2.09	3.25
From Oct. 1st to April 30th	21.11	7.70	16.09

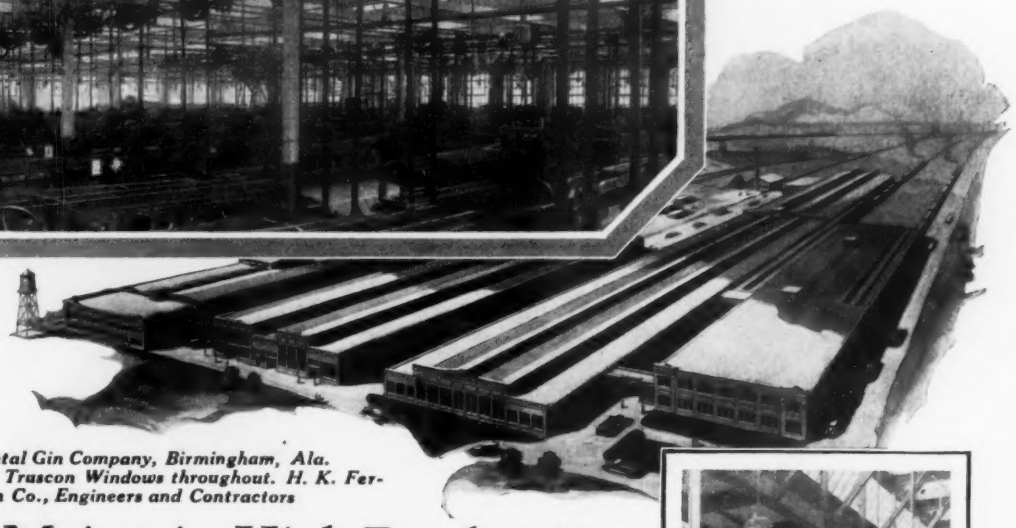
Last year, on July 2nd, the government estimated that 18,237,000 acres were planted to cotton in Texas. To-day's revised acreage report shows that the acreage in Texas last year was 19,139,000 acres, of which only 17,608,000 acres were picked, or 1,531,000 acres less than was planted, probably due to land abandoned owing to the severe, prolonged drouth last year, resulting in an average yield per acre for that State of only 113 pounds vs. 138 pounds in 1924 and 174 pounds in 1920, a year in which there was much rain at planting time, which shows the possibilities of that important State likely to come of this year's wet Spring, if followed by good crop weather in the future.

To-day the government released its revised report as to the acreage planted to cotton in the South last year. Returns show that instead of 46,448,000 acres being planted, as was estimated by the government last July, which in itself would have been a record for all time, 48,090,000 acres were planted, of which 46,053,000 were harvested, furnishing a yield on an average of 167.2 pounds per acre against 157.4 pounds in 1924.

The government will not issue an estimate on this year's cotton acreage until July 2nd, but private returns point to a decrease of only about two to three per cent compared with last year's area of 48,090.000 acres.

Notwithstanding the recent wet weather throughout the cotton region, the emergence of boll weevil has been light, smaller than last year to May 1st at the 17 stations in the interior—only .91 per cent compared with 2.23 per cent to corresponding date last year. It is possible, however, that in event of a wet summer, as it will be recalled

Virginia Woolen Mills. Truscon Steel Windows and Mechanical Operators



Continental Gin Company, Birmingham, Ala. Equipped with Truscon Windows throughout. H. K. Ferguson Co., Engineers and Contractors

They Maintain High Production

Truscon Steel Windows equipped with Truscon Mechanical Operators fit your textile mill for constant high production day in and day out. Your production depends on the efficiency of your operatives and they work better with the full daylight and adequate natural ventilation that Truscon equipment provides.

A Truscon Window and Operator installation solves your specific day-lighting and natural ventilating problems. Truscon Engineers, skilled in this phase of textile industry, work with you to secure the most efficient and economical construction. Consult Truscon before you build.

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TRUSCON STANDARD STEEL WINDOWS AND MECHANICAL OPERATORS

*A complete line of Steel Buildings, Steel Windows, Metal Lath, Steel Joists, Steel Poles, Concrete Reinforcing for Buildings and Roads, Pressed Steel Specialties, Waterproofing & Technical Paints. Truscon maintains Engineering and Warehouse Organizations thruout the Country

TRUSCON NATIONAL ERECTION SERVICE
Assures Accuracy Speed & Economy.

that the dry summers of the past two years held the weevil in check, the weevil may become more numerous, perhaps destructive, but if the summer is dry and hot the weevil will likely be held in check as was the case during the past two years especially last year in the Mississippi Valley States where record large crops were made.

World textile trade conditions have not been as favorable so far this season as generally expected earlier in the season when it was thought that the world would consume about 15,500,000 bales of American cotton. So far this season spinners takings of American cotton by the world total only 12,993,000 bales against 12,613,000 to even date last season, promising at the moment a total for the season of about 14,867,000 bales vs. 14,487,000 for the whole of last season, and as the last year's crop is so much larger, prospects are that the world's carry-over at the close of the season, next July 31st, will be comparatively large, perhaps about twice as large as was carried over at the close of last season, as will be seen from the deductions below:

AMERICAN COTTON—BALES.

	This season	Last season
World's carry-over, August 1st	2,880,000	2,319,000
Indicated crop, including linters	17,584,000	14,808,000
Indicated season's supply	20,464,000	17,127,000
World's consumption, if	15,000,000	14,247,000
Indicated world's carry-over, July 31st	5,464,000	2,880,000

Viewing the situation from every angle we see nothing bullish in the present situation unless the weather continues unfavorable or weevils become numerous and destructive later in the season. The surplus from the old crop is large, there is the prospect of another large acreage this year, there is a good season in the ground in the Southwest, particularly in Texas, sales of fertilizer are large, and weevil emergence to May 1st has been light. Meanwhile the demand for spots and goods is slack, which is reflected in small sales of raw cotton in the South and light sales of goods in the North.

Butterworth Buys Klauder Weldon Plant.

H. W. Butterworth & Sons Company, Philadelphia, Pa., have announced officially that they have purchased the plant, stock, ground and equipment of the Klauder Weldon Dyeing & Machine Company at Bethayres, Pa., which went into the hands of the receiver in December, 1925.

The purchase of the plant by the Butterworth organization was made at the receiver's sale in Norristown, Friday, May 14th, before Judge Stinson, Referee in Bankruptcy.

The Klauder Weldon plant, which will be known as the Klauder Weldon Division of H. W. Butterworth & Sons Company, comprises six buildings and embraces twenty acres of ground at Bethayres. The main building is 435 feet long by 45 feet wide, opening up to 140 feet wide at the end. All the buildings are iron and concrete in construction. Complete iron and brass foundries are included as part of the plant.

H. W. Butterworth & Sons Company will continue to operate the plant and as before, make skein machines, raw stock machines, garment machines, tubs, special machines for sulphur color, carpet yarns, machines for hosiery dyeing; also machines for dyeing, bleaching and scouring.

Before moving to Bethayres, the Klauder Weldon Company had been located at Yardley, Pa., and previous to this at Amsterdam, N. Y. It was one of the oldest textile concerns in the country.

B. R. Clarke President Industrial Rayon.

Bertrand R. Clarke, for the past several years vice-president of the Tubize Artificial Silk Company of America, has been elected president of the Industrial Rayon Corporation. His headquarters will be at the new executive and sales offices of the company, at 200 Madison Avenue, New York City, although he will divide his time between this point and the plant at Cleveland, Ohio.

Mr. Clarke is one of the outstanding figures in the manufacture of rayon, and his selection as head of the Industrial company is recognized as an important step in the American industry. He succeeds as president Walter W. Birge, who continues with the company as a member of the board of directors, and through whose efforts largely Mr. Clarke was secured for his new position.

In assuming the office of president of the Industrial Rayon Corporation, Mr. Clarke announced some important plans of the organization. It is the plan of the new management to acquire all of the outstanding securities of its present subsidiaries—the Industrial Fibre Corporation of

Bertrand R. Clarke, the New President of the Industrial Rayon Corporation.

America, and the Industrial Fibre Throwing and Dyeing Company—so there will be one company, tending toward a stronger and more efficient organization.

The owners of Class B stock, Mr. Clarke stated, have agreed to exchange their holdings, share for share, for Class A stock, leaving only one class which will have full voting rights.

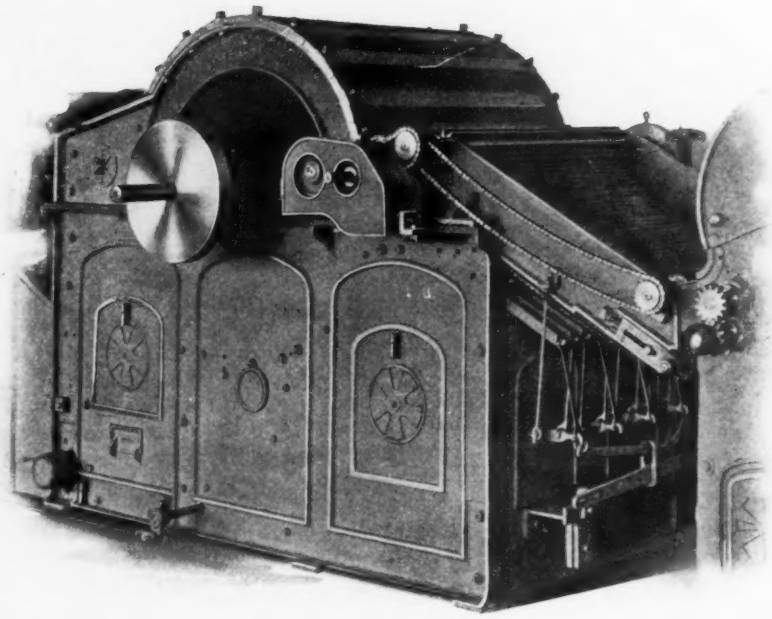
Mr. Clarke also announced that the entire accounting end of the business will be removed to Cleveland, while the executive and sales offices remain in New York.

H. S. Rivitz, of Cleveland, is vice-president and general manager, with headquarters in Cleveland. A. A. Murphy is vice-president and secretary, and director of sales, with headquarters in New York City. C. G. C. Daly continues as sales manager.

H. & B. AMERICAN MACHINE CO.

PAWTUCKET, R. I.

COTTON MACHINERY



"Buckley" Opener for Medium and Long Staple Cotton

This machine is essentially designed and built for the handling of long and medium staple cottons. The Cylinder is 41" dia., and has Steel Blade Fingers arranged spirally across its entire width. The cover over the Cylinder is provided internally with a series of projections, which act upon the cotton after leaving the Feed Rolls. In the improved construction of this machine, the cotton passes over three-fourths of the circumference of this large Cylinder.

The front and lower portions of the Cylinder are surrounded by adjusting Grid Bars, which are so arranged as to form a gridded conducting channel for the cotton in its passage up to the first pair of Cages.

The front is provided with special Feed Rolls and Evener, with vertical Evener Box and horizontal cones. Ample room has been provided below the gridded surface for the accumulation of dirt, which can be easily removed through doors provided in the framing.

Southern Office: 814-816 Atlanta Trust Co. Building, Atlanta, Ga.

NOTES ABOUT MEN YOU KNOW OR KNOW ABOUT

CLARENCE B. SEAL, for a number of years director of The A. French Textile School, Georgia School of Technology, Atlanta, Ga., has taken a position as special textile expert with the U. S. Tariff Commission, with headquarters in Washington. Dr. Seal has had previous government experience, having at one time been examiner of textiles and mechanical appliances, Bureau of Printing and Engraving. He also was designer at the Quaker City Cotton Mills, Philadelphia, Pa., and from 1902 to 1906 was in charge of designing and fabric analysis and weaving at the Mississippi Textile School. He has been a consultant on textiles with the Georgia School of Technology since November 4th, 1917. Dr. Seal has resigned his position at Georgia Tech.

EDWARD C. HEUER, manager of the Chester Knitting Mills, Rome, Ga., has been promoted to the position of superintendent of the main mill of the company at St. Louis, Missouri. He is succeeded at the Rome plant by his brother, A. D. Heuer.

JOHN D. TEMPLETON, who has been superintendent of the Aragon plant of the Aragon-Baldwin Mills, Inc., has become superintendent of the Glenn-Lowry plant of the organization at Whitmire, S. C.

J. B. WRIGHT has become superintendent of the Irene Mills, Gaffney, S. C. He formerly was superintendent of the Nokomis Cotton Mills, Lexington, N. C.

E. A. THOMPSON, superintendent of the Pell City plant of the Avondale Mills, at Pell City, Ala., died recently in Boston, and J. T. Munds, formerly overseer of spinning, has been promoted to the superintendency succeeding him. Joe Adams, second hand in spinning, has been promoted to the position of overseer made vacant by Mr. Munds' elevation.

J. W. BOST, formerly superintendent of the Jewell Cotton Mills, Thomasville, N. C., has become superintendent of the Grace Cotton Mills at Rutherfordton, N. C.

CHARLES J. FOX, president of the Steel Heddle Manufacturing Company, 21st and Allegheny Avenue, Philadelphia, Pa., died on Sunday, May 9th, after a short illness, at the age of 77 years. He is survived by his widow. In addition to his connections with the Steel Heddle Manufacturing Company, Mr. Fox was also widely known as a manufacturer of textile soaps. In this capacity he made a host of friends by his genial goodfellowship and faithful service to the best interests of the trade.

W. H. CALLAS has become overseer of the cloth room at the Ware Shoals Manufacturing Company, Ware Shoals, S. C., succeeding W. L. Erwin, who recently resigned.

W. R. BREWER recently took the position of overseer of carding at the Jackson Mills, Iva, S. C., succeeding R. L. Jackson, who has assumed a similar position at the Thrift plant of Kendall Mills, Inc., Paw Creek, N. C.

THOMAS J. DIGBY is reported to have resigned as superintendent of the Oakland Cotton Mills, Newberry, S. C., and to have removed to Greer, S. C.

W. P. ROBINSON has been made superintendent of the Perkins Hosiery Mills, Columbus, Ga., succeeding J. H. Carpenter, resigned.

CLARENCE DRIVER has become night superintendent of the Avondale Cotton Mills, Humboldt, Tenn. He formerly held a similar position at the J. W. Sanders Cotton Mills, Starkville, Miss.

C. F. TURNER has become superintendent of the Georgia Manufacturing Company, Whitehall, Ga.

J. H. MCKINNON, superintendent of the Pickett Cotton Mills, High Point, N. C., has also been made superintendent of the High Point Yarn Mills, formerly Millis Cotton Mills. He succeeds J. E. Kaneer, resigned.

C. E. DAVIS is now overseer of spinning at the Opelika Cotton Manufacturing Company, Opelika, Ala.

J. W. ABLE has been promoted to the position of overseer of the cloth room at the Abbeville Cotton Mills, Abbeville, S. C., succeeding R. D. Dillard, resigned.

LEE MCLEMORE has succeeded C. H. Johnston as overseer of spinning at the Davidson Cotton Mills, Davidson, N. C., and Dan W. McLemore, Jr., is now overseer of carding.

G. A. BARTLETT has been promoted to overseer of weaving at the Dallas Textile Mills, Dallas, Texas. He was formerly second hand in this department.

W. P. WINGATE has become superintendent of the Clara Cotton Mills, Gastonia, N. C. He formerly was superintendent of the Aileen Mills, Inc., Biscoe, N. C. He succeeds J. H. Stillwell at the Clara mill.

W. M. MOORE has become superintendent of weaving at the Musgrove Mills, Gaffney, S. C. He formerly was superintendent of the Globe Manufacturing Co., Gaffney.

J. M. COOK is now connected with the Chadwick-Hoskins Company, Charlotte, N. C. He was formerly overseer of carding at the Dresden Mills, Lumberton, N. C. James A. Walker, who has been overseer of carding at the Chadwick-Hoskins Company for a number of years, has resigned on account of ill health.

W. L. THRIFT, formerly overseer of carding at the Nelson Cotton Mills, Whitnel, N. C., is now overseer of carding at the Monroe Cotton Mills, Monroe, N. C.

W. A. HUNT, formerly overseer of carding at the Arnall Mills, Sargent, Ga., has accepted a position as overseer of carding at the Payne Mill of the Bibb Manufacturing Company, Macon, Ga.

DU PONT DYESTUFFS

SULFANTHRENE VIOLET B DOUBLE PASTE
SULFANTHRENE VIOLET B DOUBLE POWDER

The latest additions to our wide range of vat colors

WHETHER in paste or powder form this dyestuff will be found satisfactory for use in the dyeing of cotton, rayon and silk in all forms.

Its excellent resistance to light, chlorine, washing and perspiration makes it extremely valuable for the production of fast shades on shirtings, voiles and dress goods.

The paste product has been standardized particularly for the printing trade, where its many desirable qualities coupled with an absence of grit makes it a highly satisfactory printing color.

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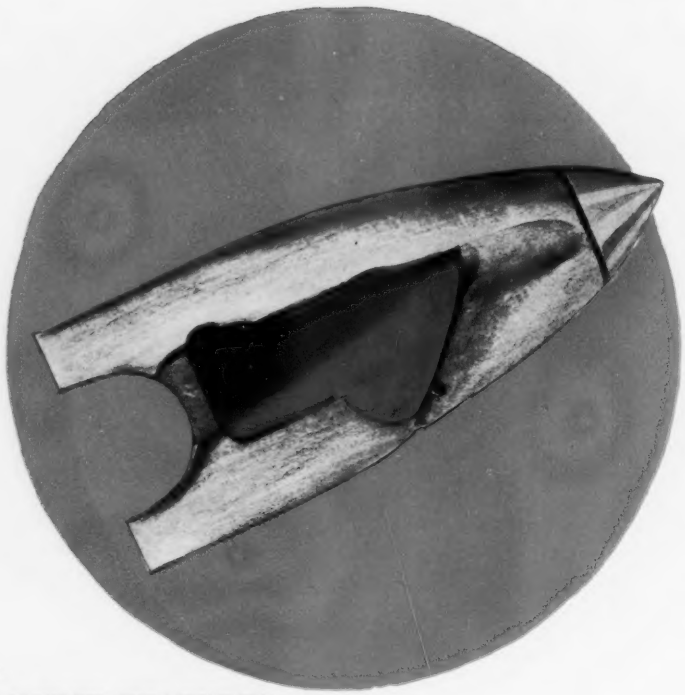

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Front pitch of eye increased so that the filling positively cannot ride the eye and will get into the outside delivery eye on the second pick after the bobbin transfer. This eliminates all possibility of shuttle cut filling.

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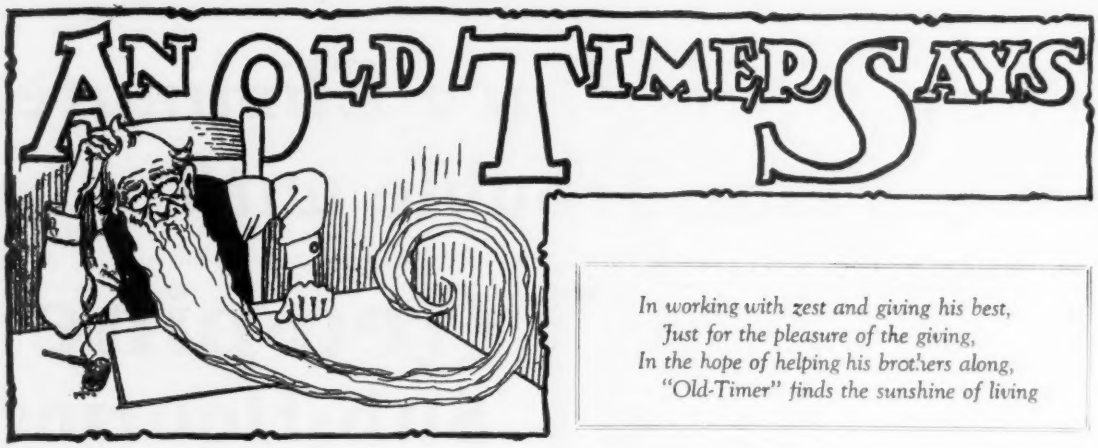

In working with zest and giving his best,
Just for the pleasure of the giving,
In the hope of helping his brothers along,
"Old-Timer" finds the sunshine of living

[Editor's Note.—You will remember that Old Timer is visiting Jim's mill and when the story stopped Old Timer and Jim were standing by the fly frames where the present chapter resumes.]

"There's a good thing, Jim!"

"What's that, Old Timer?"

"I see you have your frame hands place all the roving in the doff boxes instead of throwing it in.

"Don't that take a lot longer to doff a frame and cause you to lose production?"

"Well I will have to agree that any reasonable man would say it does take a few more minutes to doff, but it has not made enough difference to show up in the pay envelope.

"My speeder hands get just as many hanks as they formerly did and I don't have one tenth of the black roving I had before, so I figure that it pays me to have it done.

"I had some trouble with some of the hands, I'll admit, but they are all doing it now and every new speeder hand that comes in knows he has to fall in line."

"Look at that girl creeling over there Jim, she is leaving a great long tail making a doubling on every bobbin she creels.

"If she leaves only six inches and you have a draft of six on your speeders she is making 36-inches of roving that is one third heavier than the standard.

"Then if your spinning is drawing 12 you have 432 inches of yarn that makes a big heavy thread in your cloth. That will not help the looks of the cloth much, Jim."

"Yes, I know you are right, Old Timer, and I am going to find some way to stop it."

"Spinning's going pretty good, Jim. Say, how did you get word in here to these people that we were coming through?"

"I didn't get them any word—why?"

"Well, I don't see any bobbins on the floor, and they have just finished doffing, too."

"Some more of that picker room system, Old Timer. Our doffers formerly left about as many bobbins on the floor as they put on the frames when doffing, but we just decided that was not necessary, so we stopped it, and we have taught every spinner, every oiler, every sweeper, every section man, and in fact every operative in the room, not to pass by a bobbin on the floor, but to pick it up."

"There's an old man over there sitting on a box of roving, Jim, I don't believe that will make it spin much better, but I see you have changed your system of laying up roving, as you only have one row on top of the frames now.

"When you lay up two rows, the bottom row stays there sometimes for months before it is used, then when your stock runs low and you do have to use it, the twist has set and it does not run as well as fresh roving and it also makes your numbers vary more than otherwise."

"I see you are keeping the waste off of your spindles better too, Jim, than you were the last time I was here. That saves you a lot of high bobbins which means a saving in waste and many less ends for the spinner to put up. The *little* things, Jim. Goodness! The *little* things are sure big sometimes, aren't they?

"By George, Jim, you sure seem to have plenty of doffers."

"Sure we have, but why did you make that remark?"

"Simply because I see you using four doffers to a frame on 30s warp when you should only have one."

"Now look here, Old Timer, don't start any of that crazy stuff of yours. Don't you suppose I have more common sense than to put one doffer to a frame on my 30s warp and lose all that production? The weave room is keeping right up with the spinning now and I don't want any looms stopped."

"Come out in the hall Jim where we can talk, and I will tell you about an experience on doffing, then if you don't believe it, I will take you to the mill and let you see for yourself.

"The mill I refer to had four doffers to the frame and a head doffer to do the winding down, etc. After considerable persuasion, the overseer agreed to pay his spinners and doffers by the hank, and after he had that system working nicely I asked him to cut off the head doffer and two of the other doffers, leaving only two doffers to the frame.

"He put up the same argument that you did Jim, about losing production, but to make a long story short, he tried it. His production went up—not just a little, but a nice increase in percentage. Then I asked him to cut off one more doffer and leave one to the frame. He looked at me with an expression that seemed to ask, what in the -ell are you going to ask next? But he happened to be one of those broad minded fellows who is always trying to learn (and by the way, he has a better job today) so he backed

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Creo-pine Sub-flooring

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his ears and ran at it, so to speak. Up went his production again. That one idea also helped him in so many other ways that it would take me all afternoon to tell you about them."

"Never mind, Old Timer, that will do me for a while."

"Remember Jim, I did not ask you to fall for the idea, but I did say I will take you to the mill any day you wish to see it."

"Four o'clock, guess we had better move on or we will not get through before stopping time."

"Do you keep that spindle tape out here in the hall all the time Jim?"

"Yes, it is the only place we have where there is room enough to measure off the length to cut it up. Why?"

"Well, it looks like it would be pretty handy for the fellow who needs a piece at home for the kids to play "horse" with.

"It's the *little* things Jim. The *little* things that all added together make one big thing.

"And here is your spooling, and it looks pretty nice and clean old boy. I sure am glad you are getting to be a better house-keeper. I do not know of any one thing that will make a better reputation for you Jim than for people who visit you to go away and say 'he sure had a nice clean room or mill.'

"Doggone! That man is some baseball pitcher, isn't he?"

"No! I don't think he is a ball player at all; he looks too old to be a ball player, Old Timer."

"You can't fool me Jim; he has been a pitcher in his day. Look how he throws those spools. Gosh! man, he don't even have to look at the base—the box I mean."

"Hey! You * ! ! ! ? Stop throwing — — — "

(I did not wait to hear what Jim said to the poor fellow, but I'll bet fifteen cents that there was many a broken end on those spools and some broken heads.)

"Your warpers are running along very nicely, Jim. I have been standing here watching them."

"Yes, Old Timer, I saw you watching *her* as I came up. I thought you were too old—"

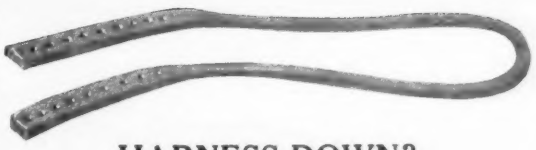
"Look at those spools wabble, Jim. Stop that warper and let's take a look."

"She's married anyhow—"

"You see, Jim, those skewers should be thrown away and the bushings in the spools should either be renewed by sending them back to the factory or you can buy the bushings and put them in yourself. My advice of course would be to send them back to the factory—then you will be sure to get a good job. Some of the spools are not level in the creel and that causes one head to rub against the creel unless the bushing in the spool protrudes out far enough to protect it. Those ends will of course pull tighter and break oftener than they should. That back roller there should be covered with flannel, or if the flannel causes too much waste to accumulate around it—cover them with blue denim—covering that roller will make the ends on the beams much more even in tension and you will not have so many slack ends on the slasher."

"Say, Old Timer, suppose we go on out to the slasher room where there is a nice greasy old man at work and see if you can find as many things the matter with my slashers as you are finding here on the warpers."

[Editor's Note.—A continuation of Old Timer's trip through Jim's mill will be found in July COTTON.



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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all varieties of Mill Subjects

We invite our readers to make use of this department for the discussion of any and all problems arising in the mill or the finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

What Makes the Roving Lighter?

EDITOR COTTON:

Why is it when the rolls on fly frames are set to say 1⅛-inch, and we change to shorter cotton, say ⅞ to 15/16 inch, that the roving will lighten up? Now, I know it will do this, but why? My theory is that the roving becomes lumpy, and the twist runs to the thin places, and then when the thick place comes to the presser, it stretches. A man argues with me that you put just as much cotton in as before, so the same must come out, but I have found out positively that the roving will be lighter.

I would like to have some of the men who read "How Other Men Manage" tell us what they think about this, and would like for them to give the reasons for their opinions.

T. R. F. (GA.)

Wants a Potato Starch Formula.

EDITOR COTTON:

I shall appreciate it if some reader of COTTON will send to "How Other Men Manage" a good formula for potato starch, as adaptable to our conditions. We make dress ginghams and similar materials, and have compressed air to partially dry our section beams. Our work is wet when it enters the size. We have the circulating system. Our present formula uses corn starch, as follows (to start): 185 gallons water, 240 pounds starch; 15 pounds tallow; and 10 pounds sizing compound. I wish someone would suggest a practical formula using potato starch.

CONTRIBUTOR NO. 4462.

Experiences in Slashing Warps.

EDITOR COTTON:

Replying to the inquiry of "Contributor No. 2635," with reference to sizing, we have made extensive tests along this line, and after keeping records on thousands of pounds slashed, believe that for every 100 pounds of solids put into the size mixture, approximately 88½ per cent, or 88½ pounds finds its way onto the yarn.

At the time these tests were being made, we were using corn starch, beef tallow, paraffin wax, and turpentine, for slashing. The net weight of yarn was taken at the warpers, and after slashing, the same yarn was weighed, with due consideration being given to waste. The difference in the weights indicated that only 88½ per cent of the solids going into the size mixture for this yarn was taken up. It must be remembered, however, that the moisture content of the slashed yarn was lower than when the weights were taken in the warper room, also that corn starch contains from 10 to 12 per cent moisture, and tallow has a certain amount of water, practically all of which is lost as the yarn is dried. The gain shown by the yarn is of course over and above these and other losses.

Your inquirer is not concerned about the small losses, and as the difference between 100 per cent and 88½ per cent, or 11½ per cent, represents a series of small losses, I will not try to account for them in detail. In my opinion, the loss of moisture content of the ingredients making up the size mixture, and the loss of moisture by the yarn, plus the slight chafing on the slasher, will run from 10 to 30 per cent, varying with the character of the materials used for slashing and the degree to which the yarn is dried as it passes over the cylinders.

These results will be surprising to a great many mill men who have never gone into this question, and to some, may seem unreasonable, but I believe they can be substantiated in any slasher room by a series of careful tests. Of course, there will always be some loss, because the best known sizing materials have a moisture content, the loss of which we cannot prevent. However, by avoiding patented compounds which are largely made up of water, this very serious loss may be kept at a minimum.

T. J. R. (N. C.)

EDITOR COTTON:

Concerning the inquiry from "Contributor No. 2635" who says that when he uses one hundred pounds of starch, tallow and compound put into the size kettle, only about 75 per cent of this material goes into or on the yarn, which would indicate that the mixture is quite volatile, I would say:

Starch itself is not volatile, but often holds a very considerable amount of water. It may be said that every pound of dry starch remains as such in or on the warp but the greatest loss noticed by your contributor is due to the fact that apparently dry starch frequently holds as much as 25 per cent of moisture. Sizing compound or tallow may also hold volatile matters in the form of light oils, volatile antiseptics and water. The warp may hold from six to eight percent of moisture before being sized and often less than four per cent after being sized.

The chafing of the warp during weaving or on the slasher drum is negligible, providing the warp has been sized with a good sizing compound combining the essential properties: adhesiveness, agglutinance, softening, lubricating and antiseptic in correct balance.

When all of the foregoing is taken into consideration.

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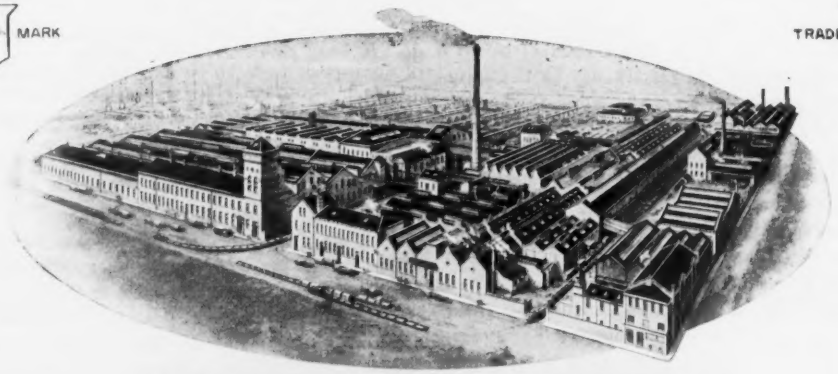
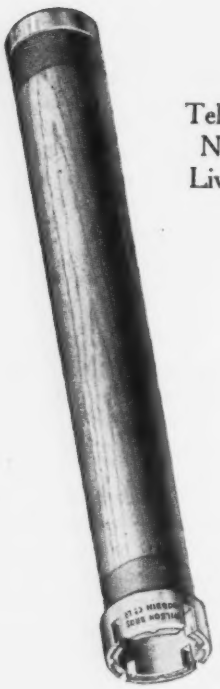


TRADE MARK WB



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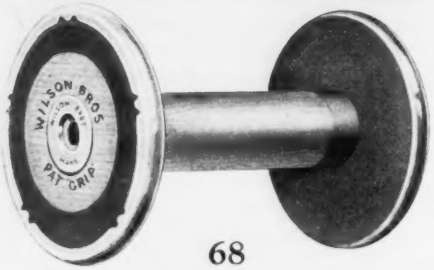

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your contributor will readily realize the apparent cause of the loss he mentions. By far the greatest loss is due to the evaporation of water contained in apparently dry starch. One of the main causes for uncertainty as to how much weight has been added to a warp through sizing is the fact that the warp frequently holds more than 3 per cent less moisture after being sized than before. This accounts for the fact that frequently, although the sizing has increased the dry weight of the warp ten to twelve per cent, the weighting of a set before and after sizing only shows an increase of from eight to ten per cent. This can be corrected by making a moisture test of the warp before and after sizing.

CONTRIBUTOR NO. 3510.

EDITOR COTTON:

Theoretically, all of the non-volatile dry substance which is incorporated in a sizing mixture should appear as added weight on the yarn. Of course, allowance must be made for unavoidable waste, such as the mixture which is left in the kettles, pipe lines, and size boxes, as well as that lost on the squeeze rolls, etc. In making the necessary calculations, allowance must be made for the moisture in starch and the water contained in the sizing compound, respectively tallow used. In some cases volatile materials are present in sizing compounds and softeners. Such materials are lost by evaporation on the slasher cylinders. Furthermore, if converting or hydrolizing agents are used in the size kettle, for the purpose of breaking down or hydrolizing the starch in the kettle, volatile products may also be produced. If proper allowance is made for moisture and waste the balance of the starch dry substance should appear on the yarn, if the starch has not been subjected to hydrolic action in the kettle and size box.

CONTRIBUTOR NO. 3511.

EDITOR COTTON:

In reply to "Contributor No. 2635," in regard to the loss when 100 pounds of solid material are put in the kettle for sizing, I am sending herewith a form, filled in, which we use and which checks each set that is put into the slasher.

From an experience of a number of years, it has been found at this mill that the loss in weight runs from 10 to 40 per cent. Of course some of this loss is due to having size left over at the end of the set and allowing it to run out of the size box into the sewer. But if careful manipulation is made we find that the loss is only about 15 to 20 per cent, which I think is very good.

The explanation of the form shown is as follows: The weight of the set is put down, which gives the starting point. Then we have the total weight available. Weigh each loom beam as it is taken from the slasher and deduct the empty beam weight. Adding these gives the total amount of yarn delivered from the slasher. Correction is made with both of these by subtracting the soft waste made from the yarn fed in and adding the hard waste to the finished yarn. Subtract the net yarn fed from the total yarn delivered; this will give the regain. Now we know the amount of solids that were put in the kettle, and the difference in the weight of these solids and the amount of regain will give the loss of solids, which may be figured in percentage as is shown on the form.

The percentage of size is figured by taking the net yarn fed and subtracting this from the total yarn delivered, which gives the amount of gain in weight due to sizing. Divide this gain by the weight of the raw yarn fed to get the per cent of size added to the raw yarn.

A very valuable piece of information that is included on this form is the cost per pound for replacing the cotton

DAILY SLASHING ROOM REPORT.

Date, March 20th, 1926.
Number of Slashers Run, 1.
Construction, 100 x 60, 4.10. 2980 Weight, No. Ends on Beam, 3688. Raw Waste Made, 6 lbs. Hard Waste Made, 5 lbs.

Loom Beam No.	Weight Empty Beam	Weight Full Beam	Pounds Slashed	Cuts Per Beam
218	98	250	152	14
261	104	258	154	14
95	105	255	150	14
271	104	241	147	14
22	105	251	146	14
44	100	254	154	14
17	112	260	148	14
161	105	255	150	14
58	102	256	154	14
195	102	256	154	14
294	104	262	158	14
71	101	255	154	14
42	100	255	155	14
49	103	253	150	14
27	104	253	149	14
24	98	250	152	14
57	97	252	155	14
330	109	256	147	14
181	101	253	152	14
72	106	254	148	14
245	101	252	151	14
114	104	236	132	12
193	105	261	151	14
Total	2365	5828	3463	320

SUPPLIES USED.

Starch	450 Lbs.	Per cent size	.1661
Tallow	Lbs.	Loss of Solids	.2244
Compound	175 Lbs.	Cost per pound, or cost of replacing cotton with size	.0738
Chemical	12½ Lbs.		
	Lbs.		
	Lbs.		
Total	637½ Lbs.		

with size. Here we know whether we are saving money by substituting starch and size for cotton. This is found by taking the total cost for all the solids put in the kettle and dividing by the regain due to sizing and this gives the cost per pound for substituting the size for the cotton.

Of course, the per cent of loss will vary according to the per cent of water that is in the compound being used also the amount of moisture in the starch, which runs from 10 to 15 per cent.

O. P. Q. (N. C.)

EDITOR COTTON:

The question submitted by "Contributor No. 2635" is interesting as I have, in the past, made tests to determine the percentage composition of starch in or on slashed warp when seeking a comparison between the different starches, softeners and other ingredients in a size mix.

First I will say that I cannot tell the inquirer just how much starch goes into or on the yarn in his particular case, not knowing the conditions under which he is working, but I do believe that after studying my method he will be able to make tests of his own and thereby arrive at a more or less accurate figure of percentage composition of starch.

The factors entering into a test of this sort are the counts of the warp yarn, from which is derived the weight of the yarn in the slashed warp; the weight of starch in the size mix used for slashing a given length of warp; the weight of the slashed warp; and the amount of moisture present in the slashed warp.

Using a typical set as an example, together with the notes and data recorded from a test made on this set, I will work the problem out step by step so that the method

will be explicit for the inquirer.

The set in question was composed of 3,000 ends, 24,000 yards long and the total weight of the section beams in this set was 3,910 pounds. It follows, then, that the counts were:

$$\frac{3{,}000 \times 24{,}000}{840 \times 3{,}910} = 21.92\text{s}$$

From this set, 510 cuts of 47 yards each were derived, which gave:

$510 \times 47 = 23{,}970$ yards.

$$\frac{3{,}000 \times 23{,}790}{840 \times 21.92} = 3{,}905 \text{ pounds of warp slashed.}$$

The size mix used in slashing this set was composed of 75 pounds of potato starch and 12.5 pounds of a specially prepared starch, which we shall call X, and the finished volume of size was 160 gallons. For each cut of warp slashed, 1.5 gallons of size was used, or a total of 765 gallons. As each gallon of size contained .547 pound of starch, 418.455 pounds were consumed. The weight of the 510 cuts of slashed warp was 4,507 pounds, this figure being obtained by weighing each beam as it came off the slasher. From this last figure, 5 per cent, or 225.35 pounds, of moisture was deducted, leaving 4,281.65 pounds. As the warp yarn was calculated to weigh 3,905 pounds it was found that the weight of the starch in or on the yarn was 376.55 pounds. From this it is seen that 41.805 pounds of starch were lost, either in the cooking or through chafing. Therefore:

$418.455 \div 41.805 = 10.009$

$100 \div 10.009 = 9.991$ per cent loss, or leaving 90.009 per cent starch in or on the yarn.

CONTRIBUTOR No. 3512.

EDITOR COTTON:

I note the following question in COTTON, which "Contributor No. 2635" asked: "In placing starch and sizing material in a kettle, assuming that the weight of the solids is 100 pounds, what per cent of the 100 pounds goes into or on the yarn, and what per cent is lost?"

Before attempting to answer this question, I made some tests to find what percentage of the so-called solids put into the size kettle could be accounted for on the yarn.

This test was made on more than 20,000 pounds of yarn. The total weight of the corn starch, grease, and softener, entering into the size mix was kept, and this was then checked against the weight added to the warp yarn by the sizing process. The following shows the results obtained:

Total weight of starch, grease and softener put into size mixes	2467 pounds
Total weight added to the warp yarn by the size	2002 pounds
Net loss	465 pounds

Thus the invisible loss was 465 pounds or 18.85 per cent.

In order to account for the 18.85 per cent loss, a sample of each kind of material that was used for the size mix was tested for moisture content. Since the warp yarn on the section beams, under ordinary conditions, contains about the same percentage of moisture as the sized warps, it would seem that the moisture contained in the materials entering into the size mix would be lost. The tests show the following moisture contents:

Corn starch	13.81 per cent
Softener	12.89 per cent
Grease	33.79 per cent

Using these percentages of moisture, the size mix, taken as a whole, figures out as follows:

90 pounds corn starch less 13.91 pct. moisture	77.6 lbs.
12 pounds grease less 33.89 pct. moisture	7.9 lbs.
8 pounds softener less 12.89 pct. moisture	7.0 lbs.
110 pounds	92.5 lbs.

Subtracting 92.5 from 110 we have 17.5 pounds or 15.91 per cent of the original 110 pounds. This 15.91 per cent would be evaporated away and represents the main portion of the loss.

Percentage of solids represented by invisible loss	18.85 per cent
Percentage of moisture lost by evaporation	15.91 per cent
Balance	2.94 per cent

I think the remaining 2.94 per cent may be accounted for by one or more of the following:

The sized yarn being delivered by the slasher contains an additional amount of size sufficient to make up from one to three per cent of stretch. It has been my experience that an average of about 1½ per cent of stretch is obtained at the slasher.

The yarn being delivered by the slasher may contain less moisture than the warp yarn on the section beams. In this case more size would be put on the yarn to make the difference.

There is a slight loss by chafing at the slasher.

The weight of the loom beams is generally on the heavy side.

From the foregoing and other tests, I am led to believe that the solids put into the size mix lose only that amount which corresponds to their moisture content.

I hope that this answers "Contributor No. 2365," or will at least help him to solve the problem. I hope to see other explanations of the question.

CONTRIBUTOR No. 3513.

Asks Information on Brownell Twisters.

EDITOR COTTON:

I would very much like to have some information on Brownell twisters and how to figure twist on them. Also any other information in connection with these twisters that will be of assistance to a man who has never had an opportunity of using them before. CONTRIBUTOR No. 2806.

Overcoming Pin Holes in Duck.

EDITOR COTTON:

This is in answer to the question of "Contributor No. 13" with reference to pin holes in 6-, 7-, and 8-ounce duck.

The best method of closing up the pin holes in these goods is to make a closer weave, by putting a greater number of threads per inch in the warp and a greater number of picks of filling to the inch also.

However, the pin holes can be closed to some extent by properly setting the harness, raising the whip roll on the loom, taking twist out of the warp and filling, sizing the warp as lightly as possible and yet have enough size on it to make it run well. And of course good smooth, even yarn is essential.

The best way to increase the tensile strength of the fill-

ing is to first card the cotton well, make as even a yarn as possible, and twist it as much as possible without making it kink in the cloth on the loom. A good filling tension in the shuttle will allow more twist in the filling without making it kink.

This man also wanted to know if paraffin wax in the size does any harm to the yarn. This depends upon the use to which the duck made will be put. If it is to be bleached, dyed or waterproofed, the wax will not bleach out very well, and it will repel the dye or waterproofing material and cause streaks in the goods. But if the cloth is for tents, awnings, bags, covers, etc., 60 pounds of wax to 150 gallons of heavy size, as he indicates, will not harm the yarn; in fact, it will make the warp weave better and the goods will have a better finish after being put through the cloth room machinery. CONTRIBUTOR No. 6643.

The Latsch Long Draft System.

A new and interesting system of long drafting has been developed by Otto Latsch, manager, Southern Mills Co., Oxford, Ala., and is being marketed by Economy Spinning Associates, 900 Noble Street, Anniston, Ala., and 312 Market St., Philadelphia, Pa.

The principle of this system involves the use of a positively-driven top middle roll driven by individual gears from the bottom roll, which is illustrated in Fig. 1. Mr. Latsch points out that this arrangement precludes the possibility of uneven draft which, he explains, might be encountered where the top middle roll is driven through fric-

FIG 1

tion with the bottom roll, when the fast-moving fibers might give to the top roll an added rotary impulse.

The basic idea of long or slip drafting, of course, is in a close roller setting between the middle and front rollers, shorter than the average length of the fiber being drafted; at the same time allowing slippage of the fibers through the rollers, in order not to injure or break the fibers, but allowing them to be drawn through the feed rollers.

In the Latsch system, as will be seen from Fig. 2, there is no change made in the spinning frame except to change

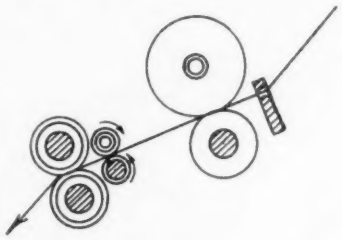

FIG. 2

the middle rolls, putting in new top and bottom middle rolls, changing at the same time the bearing in the stand slide or cap bar. These new middle rollers are of the same diameter, about ½-inch, and it will be seen from the sketch that the middle rollers are set up close to the front rolls, the distance being about ¾-inch from center to center, middle to front.

As stated, the top middle roll is driven positively by individual gears from the bottom roll, and it will be noticed that the system employs a draft between the back and middle rolls considerably higher than that used under the ordinary conditions. As a matter of fact, due to the arrangement of the middle rolls, the draft really takes place between the back and front rolls instead of between the middle and front rolls.

It is stated that if a spinning frame is equipped with self weighted rollers, there is no changing, of course, in the application of this system so far as the weighting is concerned. If the weighting is done with saddles, the back saddle is slipped back and a new saddle put in weighting the front and back rollers.

Roving Twist and the Weather.

EDITOR COTTON:

On page 551 of the April number of COTTON, I note the request of "D. A. D. (N. C.)" under the heading "The Value of Twist in Roving," for a discussion of this subject, and this is the identical thing that I should like to see discussed fully.

We are having trouble right now with some 1.75 hank roving on our spinning; this is made from low grade cotton about ¾-inch staple that grades on this market at about 700 to 800 points off middling. Our carder claims he is twisting this roving on the fly frames the same as he has been doing for the past twelve months, but it simply will not spin satisfactorily. It seems that there is not enough twist in it to pull the skewers, and it stretches in places between the bobbin and the back rolls, causing the yarn to either break down or to spin very unevenly. We are spinning 11.50's. The draft on this is about 6.55. Our carder also claims the weather conditions are the main trouble. I had him increase the twist on the speeders one tooth, and the work seems to be getting better.

I should like to have a line from "Old Timer" telling me in brief just what he thinks about the weather business. I know that the weather will affect the work all right, but I cannot understand why at all times when the work runs well the weather is favorable and when it does not run well the weather is unfavorable. What I mean by this is, that this is the position our carder takes, and he has been carding for 25 or 30 years. CONTRIBUTOR No. 3025.

Slack Selvage on Warper Beams.

EDITOR COTTON:

Referring to the discussion in the "How Other Men Manage" department of COTTON regarding slack selvages on warper beams, I would suggest that the enquirers give the warpers a general overhauling.

First. See that the creel is dead true, namely, set to the center of the machine; that the steps are in perfect condition; a uniform weight of creel peg and bobbin; re-creel before the bobbins are run very low and to keep the pieces uniform.

I suggest using glass instead of the hardwood. They give harder wear, smooth running and less tension on the yarn.

See that the drop rollers are evenly balanced, using dif-

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ferent weights for each different number of ends.

Second. That, where possible and this can be done with a small expenditure, all warper beams be made only slightly wider between the flanges than the weavers beams on which the warps are run. For illustration, in a mill making cloth from 27-inches to 40-inches I should make a 52-inch warpers beam (between flanges) suffice, and so on according to widths.

One has only to see a warp being run straight off a warper's beam onto a narrow weavers beam to see the sides "sag" or hang down.

I should have all my beams with solid flanges, also in warping each outside end should have an empty dent between it and the next, namely, in denting—No. 1 end 1st dent, empty dent and then carry on in each dent across the warp (say of 400 ends) to 399, miss one dent between the last number and 400. When running have the two outside ends just touching the flange, which would make a slightly soft side, would greatly help the slasher and make for good selvage in weaving.

From my experience, I should imagine that the whole trouble arises (I am speaking of machines in perfect order) from using a V-creel. Take a creel of say 425 bobbins, 15 bobbins in a chase. 14 chases each side, the amount of "drag" or tension on the last few chases (those fartherest away from the machine) is very much greater than in the center. Consequently, these ends are wound on to the beam at a greater tension than the others, which in unwinding come off slack and consequently reduce the output from the slasher besides the bad weavers beam which is made. The idea of the W shaped creel is a very good one also, the yarn being more evenly tensioned than in the V-creel.

Yarn should come direct onto the beam without friction on the wires of the back reed or comb. Some front expanding combs are made with the teeth set at an angle which allow for more equal setting apart of the ends and cause less friction.

To anyone adopting new methods when putting in new warpers, I would suggest that they could not do better than adopt the system of warping from the cone or over end delivery where the cone or package is stationary. This will give good delivery, insure even tension, speedier warping, and with the W-creel and attention to some of the foregoing details there should be little trouble if any at the slasher.

CONTRIBUTOR NO. 6957.

An Adjustable Comber Trumpet.

An improved form of trumpet and stop motion for the Heilman type of comber, designed to eliminate the difficulty of having the sliver break after passing through the calender rolls after bunching or enlarging in the trumpet because of the trumpet being too close to the rolls, has been invented and developed by A. J. Blackwood, superintendent, Durham Hosiery Mills No. 4, Carrboro, North Carolina.

Mr. Blackwood points out that in the usual type of trumpet, which has a definite position or may be spring-pressed for automatically varying its position towards or away from the rolls, the purpose is oftentimes defeated because the mouth of the trumpet is usually placed too close to the calender rolls, so that the distance between the trumpet and rolls is less than the length of the staple, leaving one end of the staple within the trumpet while the other is grasped by the calender rolls, so that when any breakage occurs it will take place beyond the rolls.

In Mr. Blackwood's invention, the trumpet is adapted to be set manually a predetermined distance from the calender rolls, this distance being determined by the length of the staple used. The invention is shown in the accompanying sketches, the larger view showing a cross-section of the pan, trumpet and rolls. The trumpet is provided with a groove *A*, as shown in the smaller drawing, Fig. 1,

FIG. 1

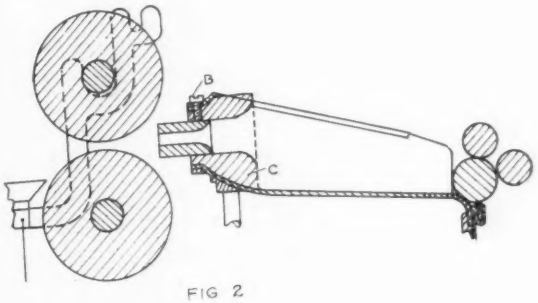

FIG 2

and the set-screw *B* in the larger illustration, Fig. 2, is used for holding the trumpet at any desired point by engaging in this groove. Thus it will be seen that the trumpet may be moved backward and forward in the guide C and rigidly fixed in position for compensating for various lengths of staples of cotton used.

By being able to adjust the trumpet, or replacing it with one of greater length, Mr. Blackwood explains, it is possible to compensate for various staples so that at no time will an end of the staple be located in the trumpet while the other end is grasped between the calender rolls. As soon as the sliver is broken, and the calender rolls have formed it entirely onto the table, the top roll will fall upon the bottom roll and complete the circuit, stopping the machine.

Combers and Combing.

EDITOR COTTON:

I have read the letter from "M. W. H." appearing in the October, 1925, issue of COTTON, which was in reply to my letter printed in the August issue of the same year, and I am sorry to say that his diagram illustrations were not very effective in trying to prove to me that the half lap combs 90 per cent of the cotton. I am aware that he only used one fiber for the sake of simplicity, but he did not have to do this as far as I am concerned, or even if he were using the single fiber for the benefit of the other readers, he was illustrating something that is not practical

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and making it harder for the reader to become better acquainted with the comber. So it was useless for him to consider one fiber only, when in practice such a thing is out of the question.

"M. W. H." goes on to say that (paragraph 6) "The detaching motion is, of course, operating on each of the nips shown in the figures, but from these diagrams it will be readily seen that the individual fiber cannot be reached by the detaching rolls until it has advanced about one inch from the nippers, and during this time has been combed six times by the half lap." Now if a mass of fibers had been used in the diagrams, the same as under working conditions, the leather detaching roll and segment would have been detaching fibers forward at each operation or nip; if not, there would be no sliver drawn forward. Also, it does not require one inch of fiber to be advanced before the detaching roll and segment reaches them.

In paragraph 7, "M. W. H." explains his theory when considering a great number of fibers, but I cannot make head or tail of his statement in this explanation. I am quite willing to overlook a slip of the pen or anything like that, but some of his statements lead me to believe that he is somewhat tangled up in them or the different actions of the comber, for in speaking of a great number of fibers he says: "They are not all advancing evenly; some are almost ready to be gripped by the detaching rolls, while some are just starting into the path of the half-lap before they can be pulled out of the bulk of the lap behind them." Then he continues by saying: "I think this explains 'Jock's' next paragraph, wherein he says that the half lap cannot pass through the cotton five or six times, for the detaching motion would have to remain stationary for five or six nips."

I will go over some of his statements to show where he is misleading in some of his remarks. In paragraph 6 he says that the individual fiber cannot be reached by the detaching rolls until it has advanced about one inch. Now on the Whitin comber after the half-lap has combed the tip of the lap and passes from under the nippers the segment comes around for the tip of the lap to lap on, as that is what the segment is for, in a way of speaking. Then the leather detaching roll, receiving its motion from the steel detaching roll, strikes the segment as it comes around and between the leather roll and segment they grip the tip of the lap and really cause a snatching action on the tip of the lap as they continue to revolve and draw the fibers forward, so it will be seen that it is the leather detaching roll and segment that the fibers touch first.

Then "M. W. H." in the next sentence says the tip end is gripped by the leather detaching roll and segment. Why he jumps from the detaching rolls to the detaching roll and segment in his different remarks I cannot understand, unless he is writing about both the Whitin and Nasmith combers, which if so, he should state for the benefit of the readers that are not acquainted with a comber, and who are depending upon this source only, for their information. In the same paragraph he goes on to say: "As the detaching rolls pull the fiber forward they have a tendency to raise it up from the cylinder and into the teeth of the top comb." But if he is writing of these two machines I do not agree with him, especially on the latter statement, for on the Nasmith comber, as soon as the fibers are about to be gripped by the detaching rolls, they are not on the segment of cylinder, as "M. W. H." calls it. Then again, if he is speaking of the Whitin machine the leather detaching roll does not have any tendency to raise the fibers into the teeth of the top comb, because the fibers are gripped between the roll and segment, and the top comb in between them and the nippers, has the fibers drawn through the needles. Then again if he is only writing about one machine he will get a reader who is not acquainted with the subject all confused.

In writing of a number of fibers he said "some are almost ready to be gripped by the detaching rolls." He must cut out the "almost," for they must be ready to be gripped with detaching rolls on a Nasmith, and leather detaching roll and segment on a Whitin comber. Next he states, "while some are just starting into the path of the half-lap and others are in between." I presume that the latter statement means that some of the fibers are not far enough forward to come under the bite of the detaching rolls, but will be in the path of the half-lap the next time the latter comes around, because if not, how can some of the fibers be just starting into the path of the half-lap when the latter has passed down back of the steel detaching roll and waste-chute to be followed by the segment? If I were not acquainted with the machine I would be inclined to think that some fibers are gripped by the detaching rolls and some are just starting into the path of the half-lap at the same time. Where he states "others are in between" I presume that he means the tips of those fibers are a little more advanced than others. Then he goes on to say "they must be combed six times by the half-lap before they can be pulled out of the bulk of the lap behind them," I will leave my comments of that statement

The accompanying sketches are drawn about to scale. The feed rolls are 5/8-inch in diameter, and the detaching rolls .89-inch on the drawings of the Whitin machine. The feed roll 3/4-inch and detaching rolls 29/32-inch on the Nasmith. The rest of the parts are about in those positions at the time of illustration, and they are drawn from memory or what I judge the position to be from practical knowledge of the machines. I do not profess to be a draftsman, but the illustrations do actually take place as shown.

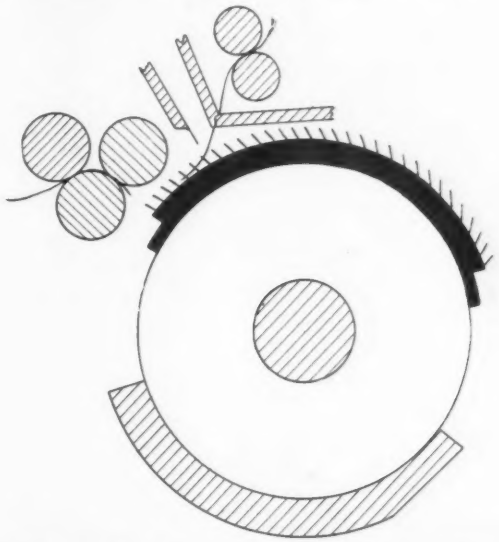

Figure 1 shows the fibers just protruding from the bite of the steel and leather detaching rolls as the tip of the lap is being combed by the half-lap with the nippers holding the lap so that no good fibers will be pulled out in the combing.

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until later in my letter, and I will prove that my contention on the subject in question is correct and that "M. W. H." will have to do some deep thinking if he is under the impression that he has explained my theory, as he calls it.

In paragraph 9 "M. W. H." doubts if I really think that the length detached has anything to do with the number of times the half-lap passes through the fibers. That

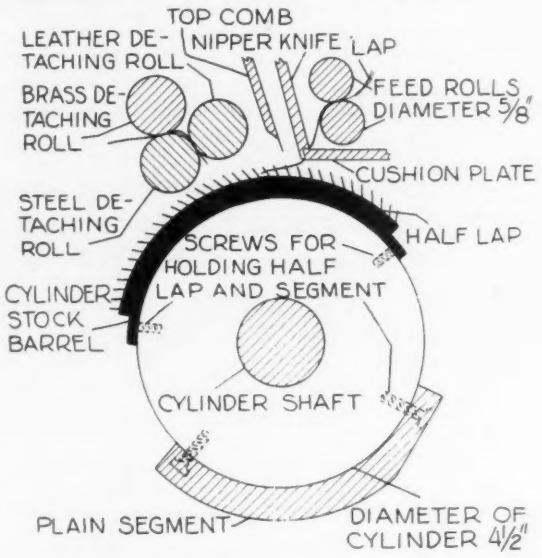

Figure 2 shows the last few rows of needles on the half-lap going through the tip of the lap and the rolls in practically the same position.

was one of the proofs I gave "M. W. H." and other readers of COTTON to show that my statement was correct, and I say again that it should be sufficient to convince any one who doubts my statement. Then in the same paragraph he goes on to say:—"The detaching motion backs up to allow the fibers just combed to lay over the ones previously combed, and then reverses and goes forward out of the way, while another nip is taken." All the detaching motion is for is to piece up the end which was broken while combing, and as its longest motion is forward, how can it comb any fibers through the half-lap, while turning in the same direction as the needles slant? Does "M. W. H." still mean to say that there are six nips before the detaching rolls or detaching roll (leather) and segment grip the tip of the lap and draw the fibers forward?

For if so, he is absolutely wrong, as such is not the case.

I wonder if he knows what the term "nip" means, speaking practically in a mill or referring to nips on a comber, for in speaking of nips on a comber, it is referring to the speed or motions of the nipper frames per minute, or one nip means one complete operation or movement of the different parts of the comber. For instance, set the index wheel at say No. 1 and turn the driving pulley around until the index wheel points, or rather is at No. 1 again, and "M. W. H." will find that the nippers have opened and closed once, the feed rolls fed once, the detaching roll detached and backed off once, the leather detaching roll strikes the segment once(on a Whitin machine), the top comb combed once, and last but not least, the half-lap combed the tip of the lap hanging from the nippers once.

"M. W. H." must remember that the index wheel is keyed on the cylinder shaft, and for every revolution the index makes, the half-lap makes one, except that on the double nip comber there are two half-laps that comb the

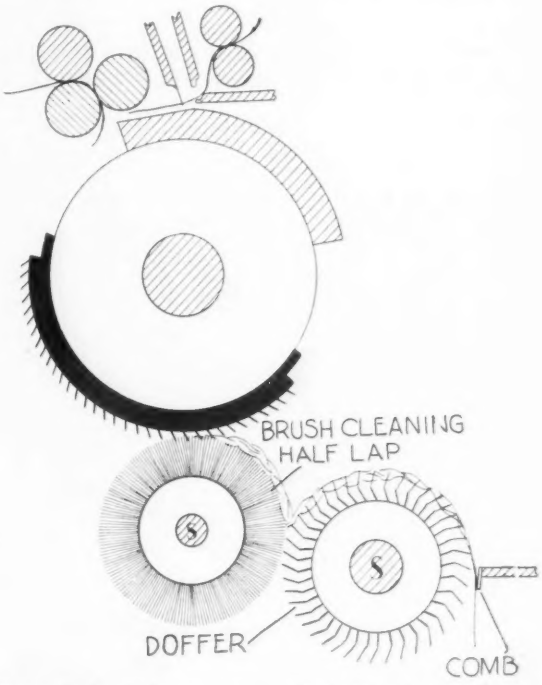

Figure 3 shows that as soon as the half-lap has passed behind the steel detaching roll, the latter reverses and returns some sliver as shown, and the segment is in the same position that the half-lap was in Figure 1. The feed rolls have delivered the amount to be fed when the leather roll is ready to strike the segment and grip the tip of the lap that is laid on the segment and draw the fibers forward. As they are drawn forward they are carried to the bite of the steel and leather rolls before a piecing can be made. When the half-lap comes around again it cannot comb those fibers that have been drawn forward. Figures 1, 2 and 3 are of a Whitin Comber.

cotton during one revolution of the cylinder, and also two detaching roller cams to take care of the extra motion. This does not apply in his case for he has Whitin combers.

Another thing to which I want to draw his attention is that all those parts I have mentioned are set at a certain number on the index wheel to commence operating or be at a certain point when that number comes around to the index pointer, and all the parts that move, receive their movement or are operated either directly or indirectly from the headstock. The detaching motion backs off to allow the fibers just combed to lay over part of the ones previously combed, and as its longest movement is forward, it shows that the fibers just combed are only laid over part of the fibers previously combed after they are returned by the backing off movement of the roll. The backing off and forward motion of the steel detaching roll is done after the half-lap has passed behind the steel detaching roll and waste-chute, so the only combing done by the half-lap is when combing the cotton hanging from the nippers as it passes under the latter.

In paragraph No. 10 "M. W. H.'s" letter reads as though he were referring to a paragraph in my letter, judging by the way he starts in saying "In the next para-

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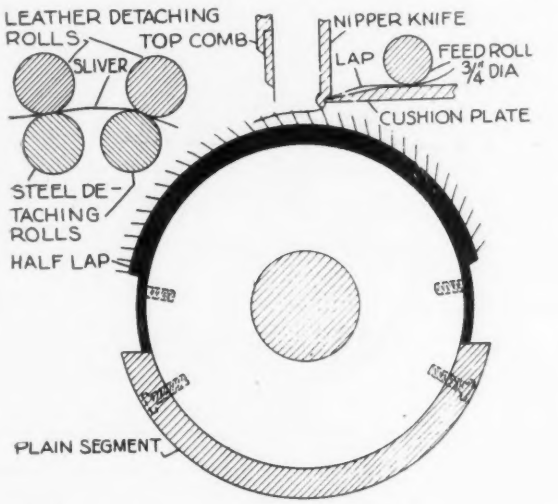
graph it would almost appear that the fibers were held at both ends at once and combed in the middle." If any part of my letter did read that way to him, it must be because he did not understand my meaning. I also mentioned in one of my previous letters to COTTON about some comber men jumping to the conclusion that because the comber is only feeding say 1/6-inch like "M. W. H." or ¼-inch, that every inch of the combed sliver on the table has been combed by the half-lap six or four times, but such is not the case, as I have previously proven and am proving again in different parts of this letter.

On a Whitin comber the steel detaching roll is in a fixed bearing, and before the fibers that are ready to be drawn forward are gripped by the steel and leather de-



In Figure 1A, of a Nasmith machine, we show the tip of the lap being combed by the half-lap and the nippers gripping the lap in the usual manner also the previously detached fibers just protruding from the bite of the steel and leather detaching rolls.

taching rolls, they must first be gripped by the leather roll and segment, drawn or pulled from the tip of the lap and carried to the bite of the leather and steel rolls where a piecing is made, as the returned sliver is hanging from the bite of these two rolls.

When the nipper frames on a Nasmith comber swing backward, causing a separation of the fibers, the rocking motion of the leather detaching rolls cause the leather rolls to move backward (here I am speaking of the leather rolls in all the heads) or follow the nipper frames a little distance and remain at the end of the backward motion, and while the nippers are swinging backward and the leather rolls are following the nippers, the half-lap is under the nippers combing the tip of the lap hanging from the nippers. So it is seen that the roll does not move away from the half-lap to be out of the way, but the roll does move away from the nippers, as the nippers advance, and at the same time backing off the sliver to be returned.

In the same paragraph "M. W. H." admits that there is a long draft between the feed rols and the detaching motion and says this accounts for the number of inches being increased at the detaching roll, but it has no effect on the number of times that the half-lap passes through the cotton. I think his own statement there should prove that the half-lap does not do 90 per cent of the combing, for the nippers must grip some of the length of the fibers while they are being combed by the half-lap, so the length of the cotton being combed is less than the length detached, and the length detached is longer than the length of staple, which proves that some fibers have been drawn forward that have scarcely been touched by the half-lap and some most probably not at all, more so on a Nasmith than on a Whitin comber, because the length of fibers detached on the latter comber are not as long as on the former machine.

The object of the comber is not only to remove short fiber, but also to remove nep, leaf, etc., for why have a top comb on the machine if it only combs the tail end of the fiber? It can be said that it is to parallelize the tail ends of the fibers and hold back any short fibers, but it is also to remove any nep, leaf, etc., that the half-lap did not get a chance to remove, and as for the top comb holding back any short fibers, that remains to be proven. For instance, suppose we are taking 16 per cent of waste out of the comber and it has been decided that is sufficient for the class of work required and the amount of waste was cut to 14 per cent, then more fibers must be detached forward and less removed as waste. That being the case, then there must be some short fibers in the finished sliver, for while some of the long fibers that were previously in

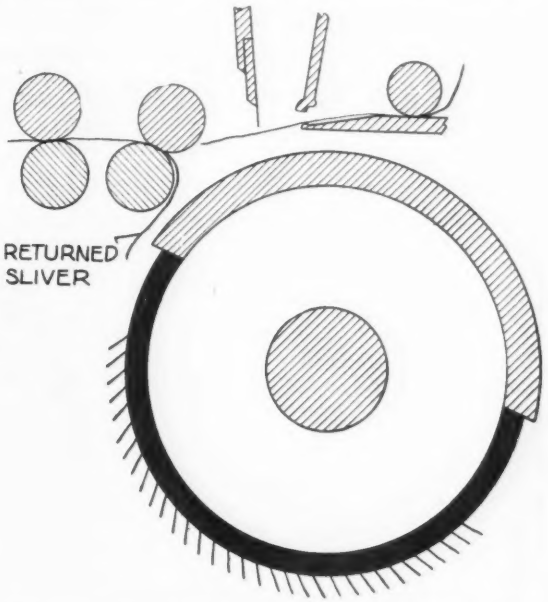


Figure 2A shows where the detaching rolls returned their usual length after the half-lap passed around, and the tip of the lap being presented to the bite of the rolls to make a piecing with the top comb ready to drop into the lap; also the leather rolls rolling forward as the nippers approach them or its dead point and as the nippers swing forward the amount fed is delivered by the feed roll, for the leather roll is nearer the half-lap when the latter is combing than at any other time.

the comber noils are being regained with the 14 per cent waste, some of the short fibers will be taken with them, so why does not the top combs hold them back? This time it can be said that the top combs have been raised. In reply to that answer I would say that the top combs are set deep enough to penetrate the lap unless on the semi-combed work or taking a low waste percentage.

Care should be taken in writing about such fine points, as a great deal of assuming has to be done when the con-

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ditions are not known. If "M. W. H." had been in some of the controversies and dealings in which I have been engaged with agents, superintendents and overseers of the mills that I have worked in he would soon find out how many objects the comber is supposed to attain. The majority were under the same impression as he is that the half-lap combed 90 per cent of the cotton and expected the sliver to be free from nep and only taking out 15 per cent of waste from a fairly heavy lap. However, it is not difficult to show what a comber can do under the existing method of combing and that it could not be done without increasing the waste percentage.

I will now point out a few more things that will prove that the half-lap does not comb 90 per cent of the cotton,

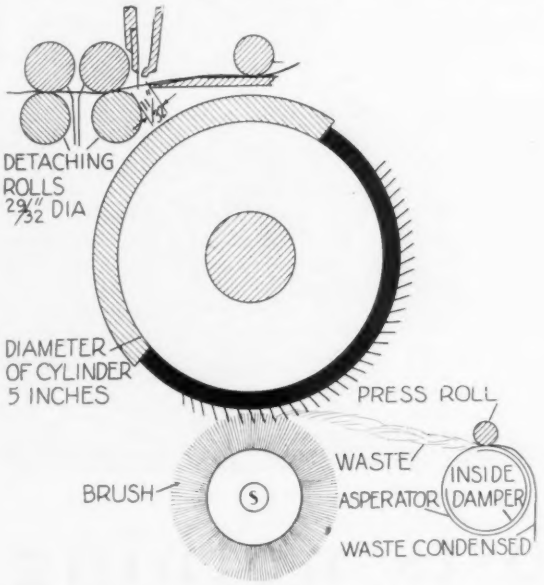

Figure 3A shows the finish of the detaching movement with the top comb well in the lap, the leather roll leaning as far forward as it was leaning backward when the half-lap was combing; also the nipper frame ready to swing backward thus causing the nippers to make a separation and the nipper knife to close and kind of help it and the top combs to rise. With the top combs rising and the nipper knife closing, the latter, in a way, strikes the lap from behind the top comb in its downward motion.

but in the neighborhood of 50 per cent as I have previously stated.

First, I am not in accord with the settings as given by "M. W. H.," as he only has 1/6-inch in difference between the detaching roll cushion plate setting and the detaching feed roll setting. I do think it would be an advantage to close in the cushion plate to the detaching roll setting, and I do not know the conditions under which "M. W. H." is operating his combers, but the difference between the two settings prompts my suggestion.

Second, there would be better quality yarns, freer from nep and leaf, and more comber waste made if the half-lap did 90 per cent of the combing; also, double combing would be dispensed with.

Third, it is always advised to have the top comb enter or penetrate the lap just before or about the same time the piecing is made, and the point where the comb enters the cotton is in the neighborhood of 5/8-inch (depending upon the time of detaching and the time of the comb entering the cotton) from the tip of the lap.

Now the rest of the length to be detached must be drawn through the top comb, which shows approximately 50 per cent, and that length drawn through the top comb (on a Nasmith comber) is longer than on a Whitin and they are fibers that come from between and back of the nippers, being drawn forward due to their clinging to fibers already gripped and assisted along, and also due to the nippers swinging up to their dead point, which is as close to the leather roll as possible without striking (or No. 19 index) enabling some of the fibers that were not gripped at either end to be drawn forward through the top comb and increasing the draft. "M. W. H." must bear in mind that as the nippers swing forward on a Nasmith the feed rolls feed the amount set to be fed, releasing its grip on some of the fibers and taking them nearer as the nippers advance, and the other ends of those fibers are clinging to the ones already gripped by the rolls.

On a Whitin comber much has to be considered, for there is not the same length detached due to the mechanism and method of detaching. Therefore, the detaching roll and segment have not the chance to draw the same length of fibers or sliver as with the Nasmith detaching rolls. The leather detaching roll must have attained the same speed as the segment when the roll strikes the latter (so there will be no friction) and as they come in contact with each other they grip the tip of the lap (not losing any speed) and in place of a gentle or easy drawing action there is a sudden pulling, or rather a snatching action on the lap as the fibers are drawn forward through the top comb, and this causes a sudden detachment or separation of the fibers, in a way making it only possible to be able to draw those fibers that are pulled as soon as the roll strikes the segment; and a detachment of the fibers made so suddenly makes the production of the Heilman type (this includes the Whitin) combers fall below the amount produced by the Nasmith type. That is why the Whitin is an 8-head machine. So if working long cottons the amount combed by the top comb and half-lap will vary, as I stated in previous issues of COTTON. My figures were made to consider the different makes of combers, timings, settings, methods of detaching, time and amount fed, length of staple, etc. So that shows with the top comb entering the lap just before or when the fibers are immediately gripped by the detaching rolls or roll and segment (on Nasmith and Whitin) that they comb more than the tail end of the fibers.

Fourth, if "M. W. H." will break the sliver off at the bite of the calender rolls on the sliver table, then take a look at the number on the index wheel and turn the comber around until that number appears again under the index pointer and then see how much is delivered at the calender rolls and compare that length to the length fed, (for during that one revolution of the index wheel the half-lap and segment turned around once, rolls detached and back off once, top comb entered the cotton once, the nippers opened and closed once, and feed rolls fed once; or, in other words, they all operated once or one nip was taken) he would not find as great a length as he would on a Nasmith comber, but let him compare it to 1/6-inch that he is feeding and he will soon find out that I have not got my figures regarding the amount combed by the half-lap from comparing the amount fed with the amount delivered, which if I did would show still less combed by the half-lap. The amount delivered was only one proof.

Fifth, the draft between the feed rolls and the calender

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rolls should be another point to convince him if he feeds 1/6 of an inch then he cannot comb much more by the half-lap, I should say about ½-inch. It may be asked where that extra length over 1/6-inch comes from, and the answer is, due to the fibers after the separation has been completed not being even, or I should say, due to the tips of the fibers not being evenly advanced and are those that just fell short of being caught in the detaching so the resistance of the top comb held them back. So when the nipper knife closed or is closing, the fibers are taken or struck from the top comb, thus giving a greater length to be combed by the half-lap than is usually fed. That will give another good reason why it is essential not to feed heavy when combing a heavy lap for quality, and why it is not practical to feed a great length any time regardless of the quality required. There is not only the amount or length fed to draw fibers from, but the length of lap from the bite of the feed rolls on a Whitin, and the length of lap from the bite of feed roll and cushion plate on a Nasmith to the bite of the nippers on both machines.

Perhaps the foregoing will help to show where "M. W. H." gets his statement: "They must be combed six times by the half-lap before they can be pulled out of the bulk of the lap behind them." I think because he finds a greater length presented to the bite of the leather roll and segment than is fed, that the half-lap has combed those fibers as many times as they are longer than the amount fed, and he cannot get away from the fact that because there is only 1/6 of an inch fed that the detaching rolls, or roll and segment, cannot draw any fibers forward until a certain length has been fed, but the amount of fibers in the lap that is being fed takes care of that, so he wants to get away from that idea. If he is only feeding 1/6 of an inch each nip, it is because it must probably be essential owing the class of work he is on and type of comber he is operating.

Sixth, he illustrated with one fiber on his diagrams. All right, now I will give him a chance to do the same thing under working conditions. Dye a handful of cotton and select one long fiber and put it into the lap, or put several in different places and then put a bunch together in one place and run that lap through the comber and see the results. He will soon find that they are not combed six times. This idea came to me as I sat here writing this letter. I have never tried this stunt, for we have no dye around our mill, but I am willing to wager anything that those fibers are not combed six times.

The reason for my long letter in replying to "M. W. H." was to show him his statements were misleading. As time permits, I will give another proof that I am right regarding the amount combed by the half-lap, for I have made changes on our combers to enable the half-lap to have a greater combing field, or comb a longer length of cotton, and the new model 1924 Nasmith single-six has the same change. My change was made long before this new comber came to the United States. There are a few other changes or improvements that can be made on the comber of today, but I shall have to withhold them as I am trying to attain a certain object in the way of an improvement.

I am sorry that I had to quote "M. W. H." so much, but it seemed necessary. I also hope that I have convinced him that my claims are correct, and if so, that he will let it be known for the benefit of the readers who are interested in the subject. JOCK (MASS.)

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The Cause of "Smutty" Bobbins.

EDITOR COTTON:

In reading an account of the spinning discussion during the meeting of the Spinning Division of the Southern Textile Association held at West Raleigh, N. C., on February 5th, I noted with interest the difficulty as outlined by C. M. Black of Goldsboro, namely, the smutty appearance in the mornings on the spinning frames at the bottom of the bobbin.

I had no end of trouble trying to find the cause of this same difficulty at one time. It was up to me to find it out, and I did everything imaginable toward that end, without any results. Finally I came to the conclusion that it was caused by smoke in the atmosphere, which conclusion proved to be correct. Mr. Black is not the only one who has had this trouble; others have suffered more or less from the same thing, but I wish to give my experience in locating the cause of this difficulty.

I noticed that this only happened once in a while, always early in the morning, usually after the mill had been closed down at night. We all know that a bobbin of yarn will always look more fuzzy at the bottom of the bobbin than at the top, for the fibers will stand out below the ring rail because the whipping of the thread or the ballooning of the yarn above the ring rail never comes in contact with the outstanding fibers below the ring rail to keep these little outstanding fibers whipped off. So naturally they become very dry, fanning in the air as the spindle is rotated and with the heat of the spindle base, and if on fine yarns where they naturally run longer before doffing, will have a rougher appearance caused by the centrifugal force of this bobbin whirling in the air causing an air current and slinging the fibers straight out. Naturally this black or smutty appearance is always more noticeable at the bottom under those fuzzy bottom bobbins because bone dry. Even the humidity in the room during the running hours does not condition this part of the lower end like it does the top, on account of the ring rail acting as a cover or shield, and the ballooning of the thread above the ring rail keeps the moisture fanned away and the roving in the creel drinks up the humidity before it gets down that low. So this part of the bobbin, especially if filling wind is used will become very fuzzy, more so than warp wind, because the yarn never comes back low enough to cover up the projecting or outstanding ends of fiber. Then after the mill is closed in the evenings and the dew begins to fall and the smoke in the atmosphere begins to settle, these little ends of fiber projecting, being bone dry, are just like a lamp-wick. They begin to drink the moisture, and being the dry part anyway, close to the warm base rail, they drink smut in with the moisture.

I learned this because I came near losing my job over it, just as the other contributor did. I trust this will be of some help to him in his difficulty. J. F. L. (ALA.)

"Putting the Factory Employees on the Sales Staff" is the title of a booklet recently issued by The Sherman Corporation, engineers, 31 Milk Street, Boston, Mass. Its contents embodies and reprints an article prepared by Mr. Sherman for Printer's Ink. The thoughts expressed are worthy of the careful consideration of operating executives in all plants. It is probable a copy may be secured on request.

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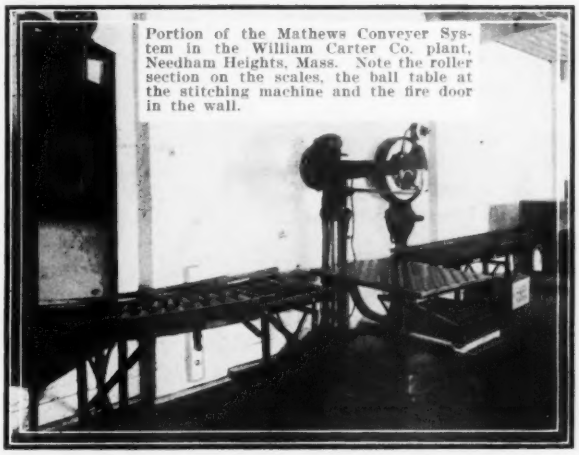

Portion of the Mathews Conveyer System in the William Carter Co. plant, Needham Heights, Mass. Note the roller section on the scales, the ball table at the stitching machine and the fire door in the wall.

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An Improved Method for Adjusting Harness.

R. N. Reynolds and T. F. Dougherty, of Atlanta, Ga., have invented a new and improved harness adjusting means that can be applied to looms of all makes and styles where harness and jack straps are used, without a single change in the present method or means of harness adjustment.

An object of the invention is to do away with the difficulties at present experienced in getting and keeping a proper adjustment of the harness, and to prevent damage to the harness and straps. It is also intended to provide a strap adjusting device that will dispense with a great portion of the leather strap and the holes therein; also with the necessity for running the screw-eye in the harness in or out to get fine adjustments. It is calculated to save both straps and harness, and it is claimed by the inventors that with it the harness can be adjusted when the warp is tied on and will remain in proper and positive adjustment until the warp runs out.

The invention consists of a clamping device to be clamped onto a short portion of the harness strap, eliminating the loop at the lower end of the strap as at present used, also the holes in the strap. The device is shown in position in Fig. 1, while a section of the device applied to a harness strap is shown in Fig. 2, and to a jack strap in Fig. 3.

The clamp is made of carbon steel, and consists of an outer sleeve made of tapering form, larger at the upper end and small at the lower end, being open at the upper

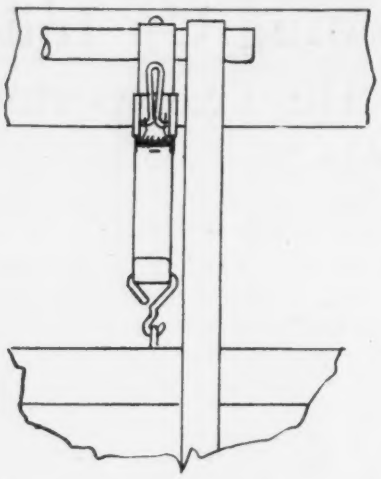

FIG. 1

and lower ends and enclosed at its base and two sides, with a slot in the front wall to permit of the operation or swinging of the locking lever adapted to rest and rotate in bearings formed by the inner clamping member. The terminal ends of the lever are cam shaped in order that when the lever is swung outwardly at right angles to the strap, the inner clamp member is loosened and pressure is released on the harness strap, allowing it to be moved the proper amount for the required adjustment of the harness. The inner clamp member consists of a carbon steel strap with the upper end formed to conform to the taper of the tapered sleeve, so that when it is placed in the sleeve and the lower end of the harness strap is inserted between the two flat sides of it and the tapered sleeve, it can be pulled down through the sleeve, the taper causing it to be pressed down on the leather firmly. The clamping lever is then pressed up parallel with the strap, the cams causing the leather to be still further clamped. The lower end of the steel strap is formed into a hook, and the harness hook is placed in this, supporting the harness in the usual manner.

In the case of the jack strap, the use of the leather is eliminated entirely, the same form of clamp being used. Two companion bars are employed having co-acting in-

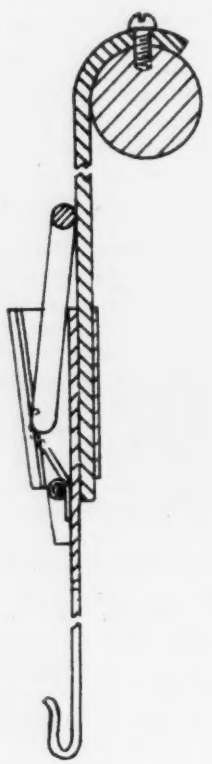

FIG. 2

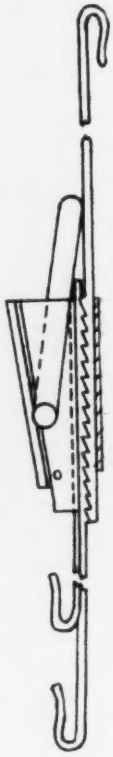

FIG 3

clined teeth at the overlapped ends, and at each end have hooks with which to connect them to the treadle and jack stick. The overlapped ends are received in a clamp device similar to the one described, and adjustment is made in the same manner.

The inventors are practical weaving men, and developed the device as a result of knowledge of the constant and trying effort to get and keep the harness in proper adjustment and realizing that so much depends on it in the way of quality and quantity.

The device is marketed by the Southeastern Mill Supply Company, Chattahoochee, Ga., which has a plant at 80 Mangum St., Atlanta, Ga.

Using Hank Clocks to Pay for Spinning.

EDITOR COTTON:

In reference to the recent inquiry published in the "How Other Men Manage" section of COTTON about paying for spinning and doffing by the hank, will say that we pay some by the hank and some by the side-hour. On the hanks we compute them once a week where the spinner works a

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IT IS more economical to twist or to prepare yarn for braiding or weaving from Franklin Packages than from skeins, whether the skein dyed yarn is prepared directly from skeins or first wound to spools. In the former case the winding can be speeded up and more tension used, and in the latter case an intermediate winding operation is eliminated.

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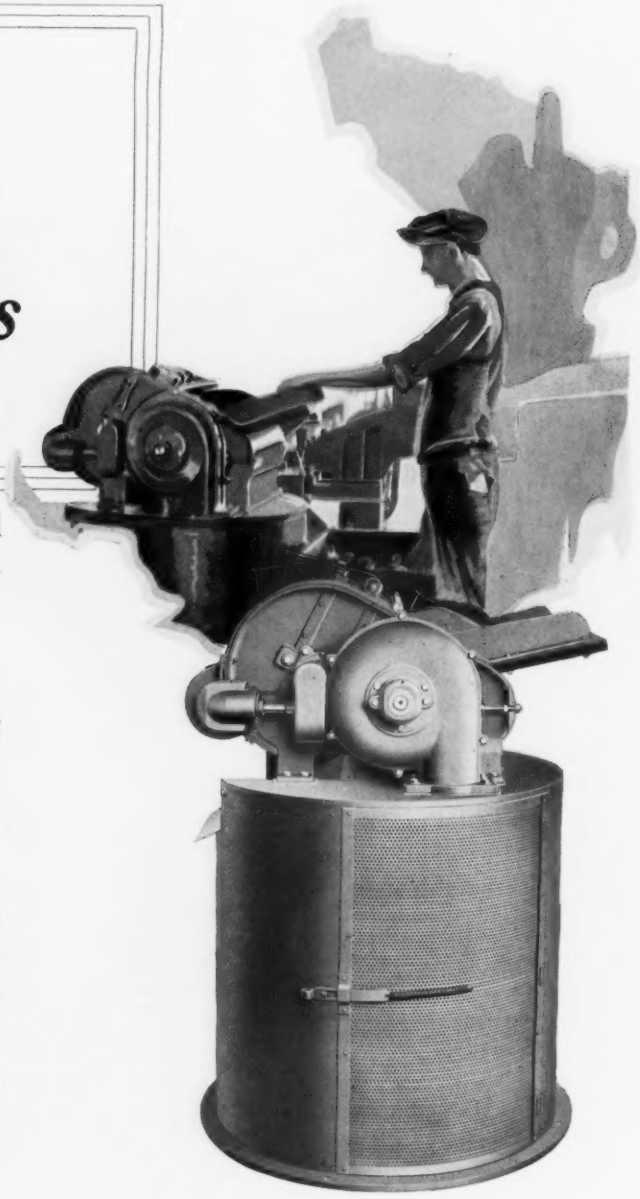
Commission Dyeing of Yarn in the Wound Form

Savings Mill Executives can effect



You can save money for your mill
—by reducing the amount of waste roving.
—by not cutting staple.
—by not cutting bobbins.
—by not having to rework roving waste.
—by letting your spinners spin, instead of cleaning bobbins.
—by having cleaned bobbins ready for doffing.

Actual mill surveys, made by the neutral A. C. Nielsen Company's engineers, show that some of the foregoing savings, effected by Termaco machines for other mills, amount to as high as 314% annually on their cost.

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TERMACO

ROVING BOBBIN Terrell CLEANER

full week. When the spinner is out, we read the clock when she goes out and again when she comes in and pay the spare spinner what she makes while running the frames.

To compute the hanks for 400 frames, I should say it would take four or five hours, and more if broken up time. I do not see anything to be gained by computing the hanks every day where the spinner works regularly all the week.

We pay the doffers by the box—so many bobbins in the box which is as correct as paying by the hank, and easier, because there is no hank reading to do when a doffer is out. We have a checker to check every box that is doffed. CONTRIBUTOR No. 1826.

EDITOR COTTON:

Our spinners are paid piece work on the hank basis. We have 250 frames and the second hand of spinning reads the hank clocks daily starting at 4:00 P. M. This takes about twenty-six minutes. The next morning all hank sheets are taken to the main office to be computed. This takes one of the girls about twenty-five to thirty minutes. After this has been done the hank sheets are taken back to the department and posted in a place where all operatives may see them. None of the overseers in our mill have clerks of their own. All are grouped in the main office under one head and all wages are computed there. Every Saturday when work for the week is finished one of the girls from the office reads the hank clocks and all daily readings must check with this weekly reading. All weekly production is figured from the hanks produced.

Each spinner is paid for the actual number of hanks she produces, although if, through some fault of the mill, a part of her machinery is stopped long enough to make any difference in the amount of wages which she would earn, it is within the duties of the overseer to see that she is recompensed. This is taken care of by making a note on the hank sheet opposite the name of the operative and under the date on which the machine was stopped.

We have an hourly rate which we pay our spare spinners when they are not spinning on a regular set of sides, but when they are on a regular set of sides they receive their wages from the hanks produced.

To compute the hanks of 400 frames both daily and weekly I should think it could be done as follows:

Reading hanks daily, one person, 400 frames, forty minutes.

Computing hanks daily, one person, 400 frames, fifty minutes.

Reading hanks weekly, one person, 400 frames, forty minutes.

Computing hanks weekly, one person, 400 frames, one hour and thirty minutes.

The only proper way to pay doffers piece rate is by the hank. This is an incentive for the doffer to work quickly in order to get the machines running as soon as possible after doffing.

It also eliminates short doffs as doffers will let the machines run as long as possible before doffing. This keeps the cost of spooling in line all the time by having the maximum amount of yarn on the bobbins all the time.

In my opinion all the drawbacks and time spent in computing hank clock readings are more than off-set by the benefits derived, namely ,increased production and lower cost, which go hand in hand and help to pay the dividends, also in knowing more accurately what your production and cost actually are.

On a room of 400 frames reading hank clocks daily it might be better to have more than one person read them, as it would save time, but I think it best to have one person taking the weekly readings.

However, I have outlined our system, which is very simple and works well for us. T. O. D. (MASS.)

Kirschner Beaters and Speeds.

EDITOR COTTON:

I have noted the correspondence in the March number in response to an inquiry by "M. C. (Mass.)" on the speed of Kirschner beaters with long staple cotton. I am adding in this letter my mite of experience along this particular line and trust it will be useful.

My experience with staple cotton 1½ and 1¾ inches long, using blade and Kirschner beaters, would be to run the two-blade beaters 900 revolutions per minute, which equals 1800 beats per minute for intermediate and finisher pickers, with a Kirschner beater on a finisher picker to run 600 revolutions per minute, which equals 1800 beats per minute, being a three wing beater; both blade and Kirschner beaters to be set at ¼-inch from feed roll. I find this speed and setting to give the best results.

I trust that this information will be of some use to COTTON'S readers. E. W. (R. I.)

Cork Rolls and Overdrafting.

EDITOR COTTON:

By his article entitled "Cork Rolls and Over-Drafting" which appeared in the March issue of COTTON, "Contributor No. 4362" did himself credit. It is not so long ago that I felt the same about cork rolls. However, the cork rolls I am using are something new on the market and I am sure that this contributor has never had the pleasure of using them. I did not give any names because I believe that the object of the "How Other Men Manage" department is not to advertise, but is a medium through which the men in the mills may be of mutual help.

However, "Contributor No. 4362" fails to see how over-drafting will shorten the strand. Over-drafting means the wrong treatment of an inch of fibers; (1) by not having the rolls properly spaced, with too great an amount of front roll surface speed; (2) by having the rolls properly spaced with the weighting increased to overcome the resistance offered by the fibers so as to overcome some of the frictional contact of the front rolls; (3) properly spaced and properly weighted rolls will cause intermittent action which will in turn cause light and heavy places.

"Contributor No. 4362" must admit that if no frictional contact existed, a longer length of roving or yarn would result. Therefore, where there is over-drafting there is increased frictional contact, and any lagging of the front roll shortens the strand, as I have stated.

The heavy places referred to, are nothing less than fibers plucked in clusters from the second roll, so the cause of a shorter strand is due to the twist running to the light places, causing contraction; and the number of fibers in the cross-section of the heavy places is the other cause.

"Contributor No. 4362" states in the fifth paragraph—

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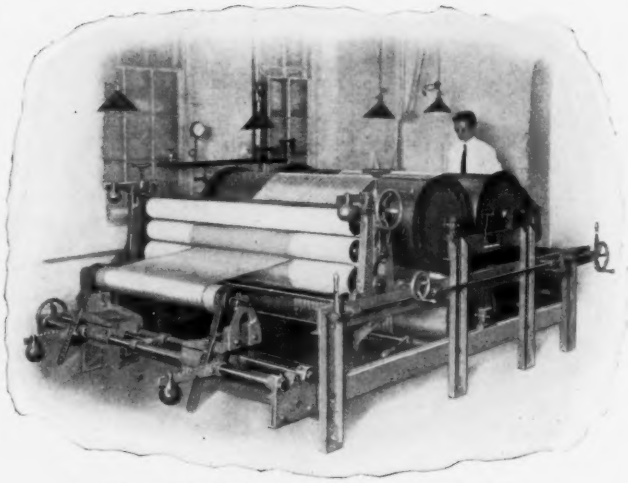

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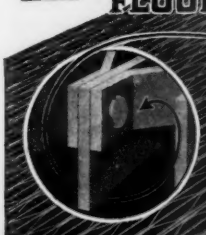

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"By the way, I wonder if 'Wash' has ever noticed an uneven roving being delivered on any fly frame, say through any common cause without mentioning the nuisance of friction on the leather roll. Does such a roving tighten up or sag somewhat or more often than not will it break?"

I hope that "Contributor No. 4362" will understand that in answering his question frictional contact is not considered.

In such a case it would depend on the strength of the stock, and also its length. If the length of the stock is greater than the distance between the eye and the termination of the presser, the strength of the strand at this point will keep the diameter of the bobbin slightly smaller than the intermediate speeds and the defective end will run slack. On the other hand, if the stock is short and weak, the increasing diameter of the bobbin will cause the short end to run tight and eventually break.

I would advise "Contributor No. 4362" that he too study the foregoing point. Concerning the test he would have me make, he should know that it is impossible to put in the standard amount of twist with the human hands, because he will please be reminded that the strand is held firmly by the drawing rolls only.

I do not blame "Contributor No. 4362" for what he states in the 8th paragraph, for I would have taken the same position a few months ago, but I assure him that in my opinion and on my work this new process of cork roll covering has it all over the leather covered rolls. What he states in the remaining paragraph is due to his having had experience with the wrong kind of cork rolls.

WASH (R. I.)

Excessive Breakage of Ends in Spinning.

EDITOR COTTON:

Replying to "O. P. (N. C.)," whose letter appears in the "How Other Men Manage" department of COTTON under the heading "What's the Matter With This Spinning?" will say that he would be better off if the speed of his spinning frames was not so high. It is too fast for a 2-inch ring and a 7-inch traverse, with the cotton he is using.

"O. P." should bear in mind that the tables in books issued by machinery makers are always plenty high enough; he would do well to go under them instead of over them.

Speaking from experience, after the making of millions of pounds of 13s yarn from practically the same hank that "O. P." is using, with the same twist in the yarn, same cotton, but with 1⅞-inch ring instead of 2-inch and 6-inch traverse instead of 7-inch, I assert his speed is too high. If he were using a 1⅞-inch ring and a 6-inch traverse he would find a big difference in the running of his work. But as it isn't at all likely that "O. P." can make any change in the rings or traverse (and it would not be the best thing to do anyway) I would suggest that he cut down the speed of the front roll five or six turns by changing the frame pulleys. Of course this also lowers the spindle speed.

This lowering of the speed will allow him to put on a traveler that will not pull too hard at the beginning of the doff, or run too light at the full doff. But if he isn't allowed to reduce the speed, there is one thing he should do by all means, and that is, cut out the square point travelers. He should use round point travelers. He should discard square point travelers, no matter what make they are. If

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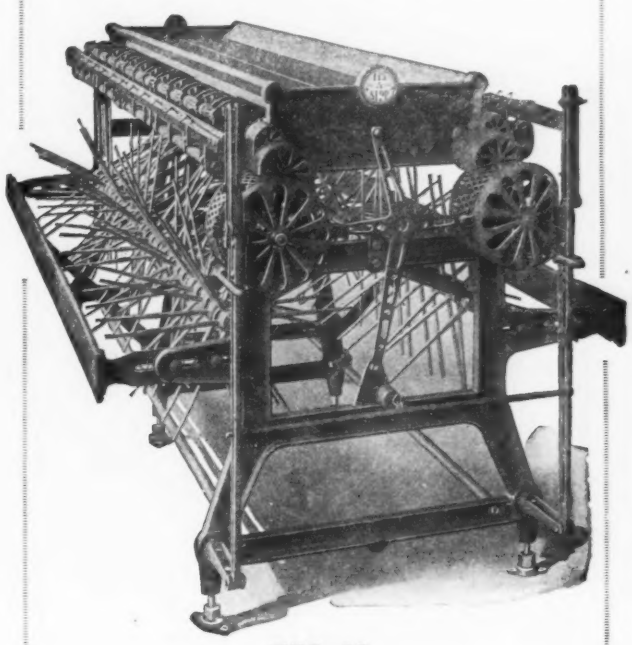

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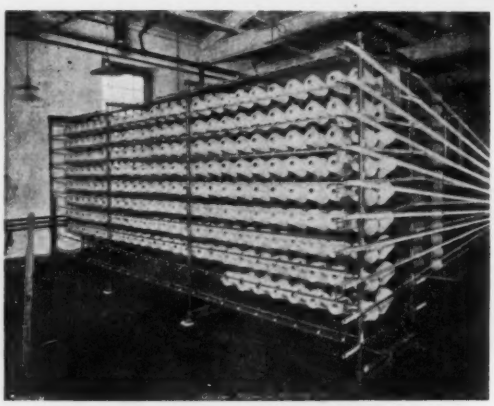

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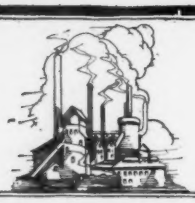

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his rings are dirty it will be well to clean them before putting on the round point travelers, but if they are not, a few days' run of the round point travelers will cause them to make a smooth track for themselves. Put a traveler with a circle large enough to allow the traveler to move freely around the ring, but not so large as to allow the ends to drop out of the travelers when the frame is stopped.

Thinking that changing the circle of the traveler has improved the running of his work is imagination. Too large a circle will allow the ends to drop out from the traveler when running slack twisted work. But he is not running that. The twist in his yarn causes the ends to draw up in the travelers and prevents them from falling out. I dare say "O. P." will not be allowed to reduce the speed of his frames for fear of a loss of production. All right, as I said before, he should by all means use round point travelers, with a circle just large enough to enable the traveler to move freely around the ring.

In regard to lowering the speed, this does not always mean a loss in production. Far from it. On the contrary many times it means a big gain in production owing to the work running so much better. Instead of a big percentage of ends being down all the time with rolls bunged up and spoiled, and waste being made by the ton and going back into the laps in the picker room to be run over and make the work run so much the worse; with section-hands galloping to put in new rolls, with not half time enough to look after their sections to keep belts on the tight pulleys; with spinners stewing and fretting and dissatisfied and the bosses in hot water all the time, and without time to draw a long breath; a lowering of the speed means very much better running work, far less waste made; greatly reduced cost of rolls; section-hands have time to see that no frames are stopped that ought to be running; spinners can run more sides and make more pay; a better quality yarn is made, and altogether the mill is greatly improved, with increased production and lowered costs.

REFEREE (CALIF.)

EDITOR COTTON:

Replying to the letter by "O. P. (N. C.)" published in the April number of COTTON will say, from the length of staple cotton he is using to spin 13s yarn, he really should have very good spinning. He no doubt is of the same opinion, hence his inquiry.

"O. P.'s" drafts and weights are apparently okeh. He does not give these in detail, but I will do so for the benefit of other readers who are interested in this particular question. The 12 ounce lap gives the following:

Machine	Grains per yard	Draft	Hank	Doublings
Card	57	96	.1461	1
Drawing 1st	57	6	.1461	6
Drawing 2nd ...	57	5.7	.1388	6
Slubber	12.3	4.88	.677	1
1st Intermediate.	4.16	5.9	2	2
Ring Frame	.64	6.5	13	1

I think if "O. P." could eliminate his traveler trouble, which he seems to stress, the work would probably be satisfactory. A possible way of doing this is as follows, and this opinion was given to me years ago by a veteran spinner, which has been proven to my satisfaction:

Yarn winding tight until bobbin is a half to two-thirds full then begins to balloon until the bobbin is full. A heavier traveler will break the ends down in the early

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stages of the set. To remedy:

Increase the spindle speed and use a heavier traveler. This balances the two evils present. I hope "O. P." will try this and that it may help him. CHRISTY (MASS.)

EDITOR COTTON:

In April COTTON I notice "O. P. (N. C.)" asked what is the matter with his spinning. I would say one trouble is that he doesn't have enough twist in his yarn. I do not think 16.9 turns per inch is enough; it is not 4.75 times the square root on 13s, and running this number from one-inch stock I would put in 17.20 turns. Also, I would run the front roll 140 r.p.m., instead of 151, as he is doing.

I have found there is no standard for front roll speed; that it must be determined according to the staple of cotton, to make the work run right and get the best yarn and production.

I do not wonder that he is having traveler trouble, because with his twist the yarn is too weak. I have the traveler to fit the ring and in that way I have no traveler trouble.

If he will do the things I have suggested, provided the roving is even, I believe he will get better results. If the front roll speed and the twist per inch are correct, the spindle speed will take care of itself.

I base these statements on 25 years experience in spinning. I have spun from 30s to 100s and am now running from 5s to 60s. T. R. (MASS.)

Vacuum Versus Roller Stripping.

EDITOR COTTON:

Continuing the discussion in the "How Other Men Manage" department on vacuum stripping, will say that I have been using vacuum stripping since 1918, and I would not change it for the roller stripper. We have always used our strippings from the vacuum system in our osnaburg stock with very good results. Taking everything into consideration, I do not believe there is any comparison in the two systems. One hears some overseers complaining that the vacuum stripper will pull the foundation of the fillet up. I have been using the vacuum stripper eight years and have had only one fillet to pull up. I had my grinder to stop the cylinder, then I examined the trumpet at the back plate and found that the trumpet was rubbing the end off of the wire. I had the trumpet set off to the proper gauge, then had to go over all the cards and see that they were set properly. I haven't had any more trouble with the foundation bucking.

When the trumpets rub the card wire they will push the wire down and the vacuum will pull the foundation up. But if the trumpet is kept set right there will be no trouble with the fillet bucking up.

My experience with the roll brush has been, first a new fillet for the roller about every three months, which is an expense to the company; then it takes two men to operate the roller, where one man can do the same amount of stripping with vacuum. Very often when stripping with the roller the man will get the cylinder just about stripped out, then his band will jump off, snatch the cotton off the roller, pull it down between cylinder and doffer and mash both of them, and then go on and mash the screens and ruin them. Possibly if the operator is not being watched when strip-

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SACO, MAINE

ping with the brush if it does not strip the cylinder clean he will just let it go about half stripped out, then the cylinder will load up, get hot, stretch the fillets and cause them to get slack. Then the cards will rub the flats and doffer and face the card teeth.

We have sixteen cards that have been running twelve years without a slack fillet. We have been stripping them eight years with vacuum. We have 32 cards that were run six years before these were, and on everyone of the 32 the fillet had to be redrawn or new fillet put on before they were run seven years.

Our vacuum stripper is very little expense for repairs. We have bought two sets of hose for our sixteen since we had it installed. Other expense for repairs is practically nothing. There has been no expense for pump repairs and it is in good shape today.

Another advantage of the vacuum stripper is the cylinders do not have to be stopped in order to be stripped. About 25 per cent more belting will be broken and ruined when stripping with roller brushes than with the vacuum. Our cards are only stopped twice a day, noon and night.

T. H. (GA.)

Stripping Motor Driven Cards.

EDITOR COTTON:

I should like to ask if any of the readers of COTTON have ever had any experience in the use of a stripper roll on their cards with a motor directly connected to the shaft. I would like to know if the motor has ever given any trouble of any kind. I will admit I have never used this system of stripping, but I am going to. We are installing some new cards with a motor directly connected to our card cylinders with chain drive, and we want to use the band for stripping, as in the older method. We haven't yet gotten our new cards to running, and I am asking this question thinking that it might be of help to me to know the proper way in which the roller and switch buttons are used to the best advantage before I start. I shall be glad to report later on the results of this new stripper for the benefit of others who may be having this same difficulty at some time.

J. F. L. (ALA.)

Saco-Lowell Shops, 1 Federal Street, Boston, Mass., have distributed descriptive literature on their new type patented adjustable grid bars for pickers, designed to bring about increased cleaning at the card, following the intensive trend toward preliminary work in vertical opener and horizontal cleaner equipment. The bars described are of smaller sections, so designated that the air currents drawn between them by the fan are at minimum intensity on the outer edge of the bar, increasing in intensity as the working edge is approached. This, it is stated, permits the heavy foreign matter to be knocked out through the strongest part of the air current beyond which the intensity is too low to draw it back. The bars are fully adjustable, and in the case of a 16-inch beater, there are sixteen bars, arranged in two sets of eight each, and all fully adjustable, instead of the former arrangement of four adjustable and five fixed bars. The bars are triangular sections made from cold rolled steel and have smooth sharp working edges, and may be removed for cleaning without lifting out the beater, it is explained. This new type can be applied to practically all makes of pickers, the manufacturers state.

Reeves Pulley Co., Columbus, Ind., have issued a new catalog, T-66, description of the Reeves variable speed transmission. The catalog features the improvements and refinements recently made in the construction of the transmission to make it still more adaptable to all types of variable speed problems. Among the features of especial interest are: the improved split splice block for the V-belt; the force feed system of lubrication standard on all Reeves transmissions; individual motor, countershaft, electrical and mechanical remote control drives; the automatic stoker control; and the vertical design transmission. To facilitate the proper selection of size and class for a given service, where the transmission is driven from a motor, a table, based on actual installations, is given, showing the correct size and class for each requirement.

A thorough cotton grading course will be given by Clemson Agricultural College, Clemson College, S. C., it is announced by H. H. Willis, associate marketing economist of the United States Department of Agriculture, who is located at Clemson College. A cotton specialist of the Department of Agriculture will do the teaching. The course will begin June 14th and will end about July 3rd. The fee will be $10.00 to cover actual expense of samples and incidentals. Mill men interested can secure detailed information by communicating with Mr. Willis.

Independent Pneumatic Tool Co., 600 West Jackson Boulevard, Chicago, Ill., have just issued "Thor Pneumatic Tool Catalog No. 15," which illustrates and describes this well-known line of pneumatic tools, as well as providing some interesting information in connection with the use of this equipment and listing the accessories.

Burkart-Schier Chemical Co., 13th St., Chattanooga, Tenn., have built a modern plant at Chattanooga for the manufacture of sulphonated oils, softeners and textile specialties. Production was started early in May.

Modern equipment, including mixing tanks, paste mixers, storage tanks, etc., have been installed, an addition being built and the building formerly occupied being remodeled for the new work. A modern testing and analytical laboratory, at the disposal of the mills, is included in the equipment.

The officers of the company are: C. A. Schier, president; J. A. Huff, of the Rockwood Mills, vice-president; W. A. Bentel, secretary; A. H. Thatcher, of Standard-Coosa-Thatcher Co., director; F. A. Carter, of American Textile Woolen Co., director; W. J. Kelly, Jr., sales manager; and E. L. Fletcher, chemical engineer.

The 1926 edition of "The Silk and Rayon Directory and Buyers' Guide of Great Britain" has just been issued. This edition is much larger than last year's issue. This volume gives much valuable information regarding silk and artificial silk in Great Britain, showing the sources of various products made from these materials, etc., and much helpful data relating to these fibers. The price is 21 shillings net, and copies may be secured from John Heywood, Ltd., 121 Deansgate, Manchester, England, or through COTTON'S book department.

Knitting Section

Facts!

Chiffons

are again selling steadily

New Model K

Insures the Demand for Your Product

$3\frac{1}{2}$ 300 Needle 70 gauge; Heel reduced in size

High spliced heel and double sole reduced in proportion, making a narrow stocking over the instep and foot. The machine embodies all the regular features of the Model K, including fashion seam and fashion marks.

Established 1865

SCOTT & WILLIAMS

Incorporated

366 Broadway New York

NEW ENGLAND SPUN COTTON YARNS

We Twist these yarns in Any Number of Plys desired
We Spin Cotton Yarns in All Numbers from 1's to 100's. from 2 ply up.

We Furnish these single or twisted yarns to suit your own particular purpose. Any Twist you say.

We furnish them on Cones, Tubes, Spools, Bobbins, Warps, Beams, Skeins—Gassed or Ungassed.

We can furnish the above from any Staple Cotton you desire.

COMBED and CARDED AMERICAN or EGYPTIAN

and behind all this an Organization that has been Spinning Yarns for Years and Years.

We recommend

QUISSETT QUALITY YARNS

SPUN FROM

EARLY BLOOM COTTON

QUISSETT MILL

NEW BEDFORD, MASSACHUSETTS

80,000 SPINDLE

QUISSETT MEANS QUALITY

"Ladderproofing" Hosiery Fabrics

BY WILLIAM DAVIS, M. A.

The attention of knitting mill men has recently been focussed on the importance of securing knitted fabrics which will either be worked "ladder-proof" or which can be improved in texture so as to render this defect more rare in the products of knitting factories. The ordinary knitted fabric in plain or ribbed stitch is susceptible to "laddering" when a thread breaks and the blemish shows itself in the direction of the length, the defect extending as long as the stretching force is applied. The cause of excessive or facile "laddering" lies, in many cases, in the manner in which the fabric has been manufactured and much of the "laddering" in former times, which gave to looped productions such an unsavory reputation, has been due to bad methods of manufacturing.

The knitted fabric is constructed in the main from a single thread which is knitted into loops which intersect in succeeding courses to make a texture. It is simply constructed and, because of this, great attention has to be paid to the principles of fabric building if success is to be attained. In the woven fabric there are two series of threads, the warp which runs lengthwise and the weft which runs crosswise in the fabric and as these two series intersect it gives absolute "ladderproofing" as any damage is confined to the place where it occurs and is strictly local. In the knitted fabric, however, a broken stitch will run the entire length of the article as long as pull is exerted. The unithread build of the knitted cloth is at once its greatest asset and its greatest defect; as the various loop members are entirely dependent on each other and are supported by the neighboring stitches, it creates a finely poised elasticity or yield which rests at the very foundation of the appeal which the knitted structure makes to the wearer. On the other hand the mutual inter-dependence of the loops gives rise to its comparatively unstable characteristic.

Recent attempts have been made to render the knitted structure absolutely unravelable, but this is at the expense of other valuable properties and some account should be given of the various agencies and methods which any manufacturer has within his reach to effect a vast improvement in the non-laddering property. Too great attention cannot be paid to the quality of needles used in knitting machinery, particularly in frames using the latch needle and if it is working faulty it will weaken certain wales in the cloth which will, in subsequent wear, readily give way under special strains. The item of special importance in this respect is the latch of the needle which should work freely on its pivot or hinge. In very fine gauges particularly, the opening for the latch has to be very accurately determined, and the rivet on which it works has also to be of the correct size as will allow the latch a free action during knitting, without being too loose. Perhaps a more common fault is for the latch to become stiff on its rivet and to work with difficulty, missing its throw over or performing this operation in a faulty manner. The screw rivet in the latch needle has been a great advance in this respect as giving greater reliability to the latch action.

The latch sometimes shows roughness or it may stick out slightly at the back of the needle at a sharp angle in such a way that when the knitting yarn rubs against it the fibers or a proportion of them get cut. This gives rise to what is termed the "furry" wale; that is a fine line of fluff appears where these cut fibers rise to the surface and these loops exhibit weakness and show an easy tendency to break out into "ladders" in the length of the fabric. With the spring needle, also, if the spring or beard is losing its virtue and does not go back to its normal position after having been pressed, the yarns will tend to split their fibers when the thread is being pushed under the spring, several filaments being unable to get under there. This gives rise to one stitch which is deficient in strength followed by one where extra fiber occurs and this creates a point of weakness which very readily breaks into "ladders."

In many cases those minute defects do not strike the

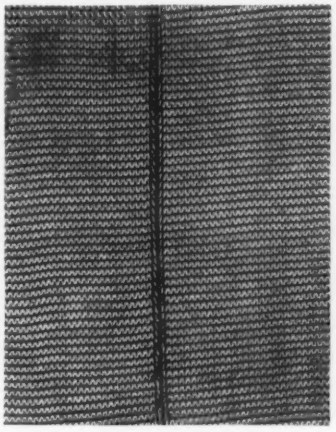


Fig. 1.

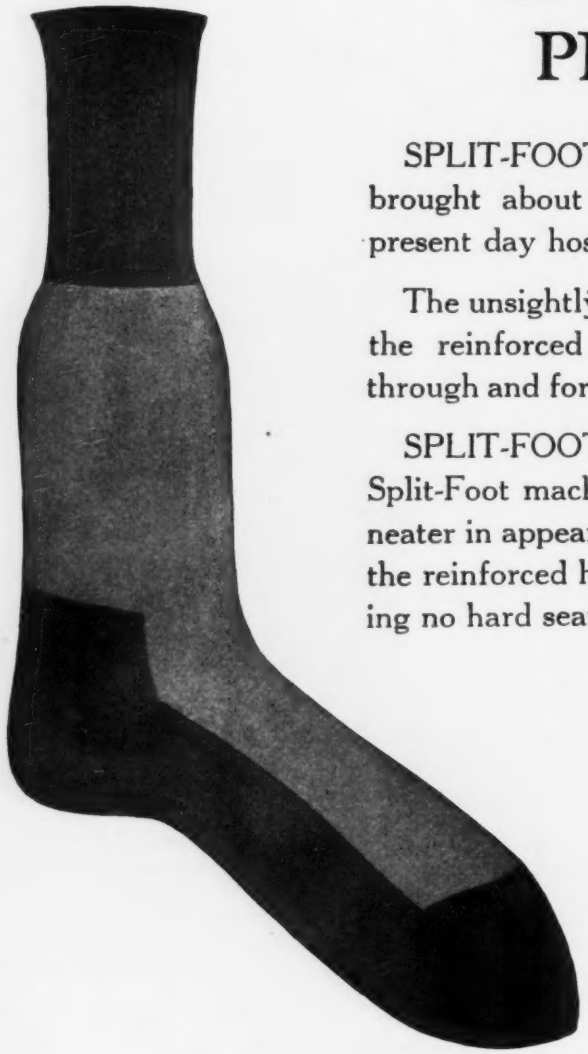
eye of the worker who is tending the machine or the mender but develop later in the finishing operations, particularly pressing where the web is subjected to stretch in width and length which casts a strain on weakly formed stitches and causes "ladders" to start. Very often in the scouring and milling process where the fabric is subjected to the energetic beating of the hammers of the machines, these weak places are unable to stand up to the pounding of the cloth and give way. This is particularly troublesome if any wool is present as it mills the hole and renders it difficult to repair afterwards.

Nails in furniture also take a large toll of knitted fabrics as they are very easily caught by these obstructions are are drawn out into broken stitches which run in a vertical direction.

The knitted fabric exhibits all degrees of the "laddering" property, from a stage when it can easily be pulled apart to one in which it is difficult if not impossible to move. The first essential in improving the fabric in this respect is to provide a good full texture. Loose, gauzy, or sleazy textures are very easily "laddered" because there is no supporting of the loops, each stitch stands more or less isolated in the cloth. If a lighter fabric is desired it should be attained rather by choosing a finer yarn and a close set of needles so that the stitches may be supported

The "BANNER"

SPLIT-FOOT PRODUCT



SPLIT-FOOT HOSIERY, the new creation, brought about by the main disadvantage in present day hosiery, namely:

The unsightly inside fringe of splicing ends in the reinforced portion which tends to slip through and form whiskers on the outside.

SPLIT-FOOT hosiery made on "BANNER" Split-Foot machines is smoother on the inside, neater in appearance and has added strength at the reinforced high splice and double sole, having no hard seams.

WHY MAKE AN INFERIOR PRODUCT?

WE INVITE INQUIRIES

HEMPHILL COMPANY

Main Office and Factory

PAWTUCKET, RHODE ISLAND

New York Sales and Show Rooms
350 Broadway, N. Y.

Southern Office,
James Bldg., Chattanooga, Tenn.

Philadelphia Sales and Show Rooms
Colonial Trust Bldg., 13th and Market Sts.

in an adequate manner. This particularly refers to the fabrics made on latch needle machines where the stitches, from their manner of making, stand each one by itself and have insufficient support. This can be improved by making the yarn fill the gauge so that the neighboring threads not only touch but actually press each other.

This mutual supporting of the stitches by a full fabric where the yarn is right for the sett of the needles is one of the first desiderata. Closely allied with this, of course, is the insertion of an adequate number of courses to give the essential density. If the gauge is too open for the yarn, some improvement can be effected by inserting a few more courses to stiffen up the texture. Fig. 1 gives a view of a fabric made on the circular latch needle machine where the line is produced by a run wale in the fabric; laddering often shows a ragged edge in the line as the stitch is still puckered. In practice when these ladders are noted they should be secured at once by the insertion of a needle even if they must be repaired later as this will prevent their running further. The trained mender of knitted fabric can soon connect the line again for all the material is there and succeeding cross stretches of thread have but to be interlooped and the fabric rehabilitated. In some firms it is customary to wait until the fabric or articles are finished before the mending is done, but there are many sound reasons for doing this in the rough state of the web as the finishing and pressing routine aggravate large numbers of knitting defects.

Spinners of yarns intended for working into knitted fabrics cannot understand why such emphasis should be placed on regularity of thread of tensile strength. The quality of the yarns in these respects is of paramount importance, for the ground thread has to bear the entire strain, there are no supporting members such as in warp or weft. Manufacturers now realise that there are limits of yarn quality which are suitable for knitting, shoddy yarns, yarns with short staple cotton with thin places all contribute to easy laddering. This factor has been one of the chief elements in the success of rayon in knitted productions, the material is produced in continuous strands without projecting fiber, it works on the needles with a minimum of friction and it has a noteworthy regular tensile strength all along the thread. These wales when they do yield ladder freely as the stitches slip easily over each other but one of the most important aids to non-laddering is a strong and virile thread as foundation.

Manufacturers who have both latch and spring needle machines in their equipment have found that the products from spring needle frames are closer and denser in texture and possess a skin or cover which is much valued by the discriminating buyer of knitted productions. In the spring needle frame, the stitch is formed more in the mass, that is a number are sunk, landed and knocked over in such a way that the tensile properties of the yarn are not strained. The loops support each other admirably and this is a great preventative of laddering. The interspaces are at a minimum and when the yarn is right for the gauge, it takes a determined pull to make a stitch run for more than a short length. In this connection there is, in the case of inherently weak yarns, a preference to work them two-ply for if the stitch gives way both yarns have to be severed before a rupture is effected. This is also a great preventative of laddering at the heels and toes of stockings, a splicing yarn is inserted extra at those points which gives the stitches greater support for each other and further if one thread is broken the second often holds the texture and stays the laddering. Fig. 2 gives a view of a pattern where the laddering propensity is used to give a special effect in a pattern. The lines marked at A and B are obtained by omitting needles from their rightful grooves at those points so that the cross courses lie unintersected.

One defect of this system of making patterns is that the unintersected lines of cross thread cause the fabric to come from the frame rather wider than it should do, and when the principle is adopted for the making of hose, numerous stitches of this character cause an appreciable widening of the article which throws it out of the correct dimension. This defect is, to a considerable extent, overcome in a new device in the automatic hose machine where the sinkers at the given points in the circle are given a

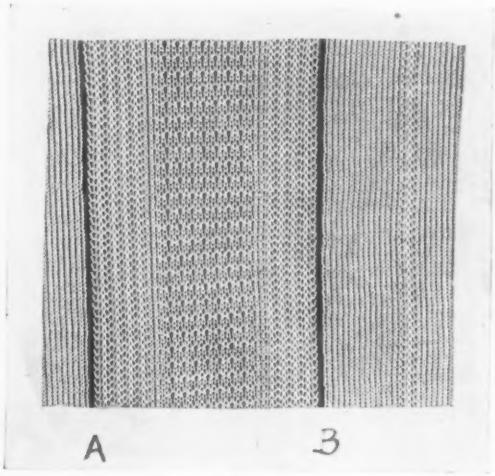
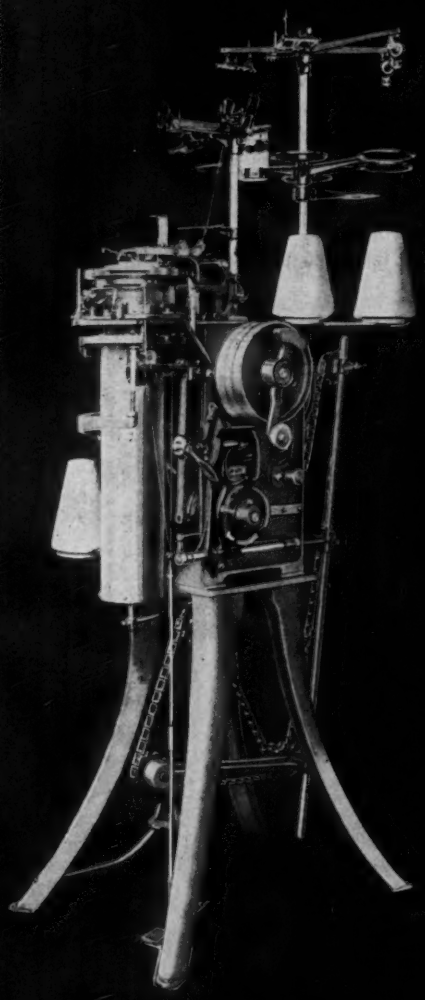


Fig. 2.

slight extra throw to draw a longer length of sinker loop which shows a line just the same but does not increase the width so much. In examining knitted fabrics, it is customary for the expert to give the articles or cloth a vigorous pull in the direction of the width which brings the strain on to the cross courses. This at once seeks out the deficiencies and gives instant laddering if broken or weak stitches are present.

The deliberate pulling of the knitted article is particularly prevalent in footwear, and in stockings the supporter is often at fault in the production of ladderings as extra severe strain is put on the tops by these agencies, an effect which is greater if the hose are of insufficient length. By the action of pulling the articles on, considerable strain is caused to the top which should be worked slacker to give greater yield. Generally a fuller yarn is found at the top to give greater internal support to the loops while the double fabric at the welt also provides fabric of very much greater strength.

In this connection the introduction and perfecting of the anti-run-back course on the automatic hose producing machine has been a great boon to the maker of knitted footwear. By this means an extra course is inserted with the aid of the auxiliary jacks and the auxiliary jack cam on a machine like the "K" model and when a course of loops is inserted by this means, laddering stitches can be



The installation of Wildman Knitting Machinery is in itself a big step toward success.

WILDMAN
THE WORLD'S STANDARD

WILDMAN MANUFACTURING CO.
Norristown, Pa.

We have issued a new edition of the complete and informative book, "The Science of Knitting." Price, $2.00.

WILDMAN
SPRING NEEDLE KNITTER

caught and held until the mender can repair them. One such course is usually sufficient at the top of the article and while laddering often gets a start, its sphere of action is considerably curtailed. In the realm of woolen or cotton and wool knitted fabrics the effect of a vigorous raising action is often to make laddering more difficult; in pure woolen goods the milling or fulling machine can make the knitted fabric so dense that its origin is totally obscured and determined efforts have to be made even by an expert to discover its real construction.

In this connection considerable interest has recently been aroused by the non-laddering fabric recently patented (U. S. A. patent number 1,482,705, 1924), which is being exploited in various countries with the building of new machines for the production of the fabric. The inventor is Augustin Serra, a Frenchman, and some particulars may be of interest for this article. The fabric is produced on a warp loom where the jacks are vertical and have only one nose; bearded needles are arranged at right angles to the jacks. There are two sets of threads which are prepared beforehand on a beam or roller, one set is placed in the eyes of guide bar number 1, comprising the odd threads in the fabric, whilst the even threads are arranged together in a second guide bar. There is a movable presser and the general action of the warp loom does not differ materially from that of recognized makes; the needles have their beards or springs upwards, the presser comes down on the springs during the making of the stitches and just prior to the landing of the loops. There is however a characteristic given to the action of both guide bars and sinkers with the object of drawing out the stitches to tighten them and with the action of the lap, the threads lock in nodes so that breakage of any thread will not cause the texture to run down. In ordinary knitting on a frame or warp loom the stitches when made hang naturally from the needles, but in this case the guide bars are given a higher movement after the making of the course to exert a definite pull on the stitches just formed while a smiliar action of the sinkers contributes to the same result. For the rest the guide bars are given a sidewise shogging movement through the agency of the "Dawson" wheel of time-honored memory, and the chief point in it is the lap. The two guide bars are given a distinctly different movement which may most easily be traced by examining an enlargement of the fabric section given in Fig. 3. The dark and solid colored threads show the movement of the second guide bar, while the dotted threads trace the action of the threads in first bar. In the first guide bar we have the plain side to side Denbigh stitch, that is the stitches are formed on needles 1, 3, 5, etc., at one course and at 2, 4, 6, etc., at the next course, when a return is made to start. The movement of the second guide bar is simple but directed specifically to cause intersection with the threads already on the needles so that the superimposed stitches lock as shown. It will be noticed that any given pair of stitches are intersected by four threads two coming from the right and other two from the left and the firmness is further accentuated by the definitely pulling action of the guide bars and the sinkers. By this action the elasticity is removed from the stitch nodes and is confined to the parts of thread intervening between the stitch sections. It is recommended that the threads used should be twisted in the direction of the left and that owing to the supported construction of the loops quite a weak yarn can be employed of cheap price. If any individual thread breaks it is held by five others as can be noticed from an examination of Fig. 3. The claim is made that it will be suitable for making into stockings, but this cannot be taken seriously as menacing the present production of our hose machines for the simple reason that they would require to be cut from web and seamed together in their parts. It is highly improbable that the public will exchange even an absolutely non-laddering guarantee in cut hose for the many solid advantages offered by seamless and fashioned articles of footwear.

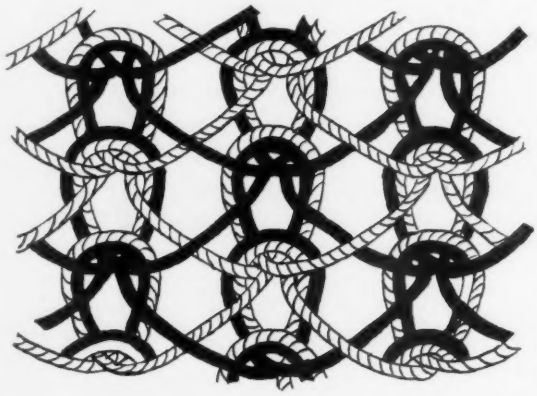


FIG. 3

Among the recent additions to the list of dyes of the National Aniline & Chemical Co., 40 Rector St., New York City, is the new National Superchrome Yellow 2G, a product yielding shades that are somewhat greener than the well-known National Superchrome Yellow GN.

The new type is distinguished by its excellent fastness properties, solubility, and level dyeing, it is stated, and may be applied to wool by all three of the chrome dyeing methods, and in any type of dyeing machine used for chrome colors. In dyeing worsted with cotton and artificial silks, the latter are left entirely clear.

This color is preferably dyed by the after-chrome method and will be found equally useful as a straight color or for shading purposes, the company states.

H. W. Caldwell & Son Company, 1700 So. Western Avenue, Chicago, have recently announced a new device entitled the Caldwell Car Spotter. As its name indicates, this device is intended for use in mill yards to stop or locate cars in a suitable position for loading or unloading promptly. The device is primarily a motor driven capstan and it is claimed can and does place cars much more quickly than the old fashioned method of using pinch bars and men.

Lewellen Manufacturing Company, Columbus, Indiana, have issued a new catalog pertaining to the Lewellen variable speed transmission. The booklet is attractively prepared, and discusses the advantages of using the remote control variable speed transmission in cases where it is adaptable. Convenience of control from a number of points, accuracy in control, reduction in labor and an improvement in production capacity are among the points advanced for the application of this method of transmission.

True Ribbed!

JUST as important as a comfortable foot and a smooth-fitting ankle is a snug, elastic top—true ribbed and knit to size.

UNIVERSAL HOSIERY RIBBER

"The Latest Development in Hosiery Ribbers"

Produces better tops—and more of them—with less waste and lower production cost. No vibrating latches in dogless—dial caps that allow free access to cams and needles—new type loose course plate that reduces needle breakage—these are just a few exclusive advantages of the Universal.

Get full details.

FIDELITY MACHINE COMPANY
3908-18 Frankford Ave.
PHILADELPHIA, PA.
120 Broadway, New York
James Building, Chattanooga, Tenn.

For any size from 2¾ in to 4¾ in. without new dogless or parts. Other sizes, 5 to 7 inches.

Super-Cone Thread-Guide Stops Waste

U. S. Pat. No. 1555773, Sept. 29, 1925

Reduces re-winding cost. Enables you to use every yard of silk from original cones. Eliminates uneven tension when cones are nearing end. Stops breakage of needles caused by broken or ragged tops of cones. Can use cones over again. Already adopted by many of the country's leading mills as standard equipment.

FIDELITY MACHINE COMPANY, PHILADELPHIA

TRUE RIBBED!

IN the quality of tops it produces, the Universal Hosiery Ribber has lifted hosiery standards to a new and higher level. Elasticity! Springy fit! Shape-clinging power! Uniformity and evenness of stitch! These elements are knit into the very fabric itself by the Universal. Investigate.

FIDELITY MACHINE COMPANY
3908-18 Frankford Ave., Philadelphia, Pa.

120 Broadway
NEW YORK CITY

James Building
CHATTANOOGA, TENN.

A hosiery top as knit on the Universal (after stretching)

The same top as above (note the stretch)

We invite our readers to make use of this department for the discussion of any and all problems arising in connection with the knitting mill from the office to the packing and shipping departments. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. All questions will be answered as promptly as possible. The names and addresses of the contributors must be given, but will be held in confidence and a pen name substituted when printed. All accepted contributions other than questions will be paid for after publication. The editors do not hold themselves responsible for any statements of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

Ribber Needles Break at the Tips.

EDITOR COTTON:

We have here at our plant 140 Brinton ribbers, 344-needle, on size 9s, and for the last few months we have been having considerable trouble with the needles breaking the tips off about half-way of the spoon. We have tried almost every remedy that we know, and I would appreciate it if any of the readers of "Knitting Kinks" could help us out by giving us any suggestions as to how to overcome this difficulty. CONTRIBUTOR No. 4227.

Overcoming Fuzzy Rayon Stripes on Hose Made On the Banner Machine.

EDITOR COTTON:

I note that one of your readers complains of getting fuzzy-looking work on the Banner machine on fancy work from dyed yarns, stating that he uses the horizontal striping attachment, and secures the vertical stripe by means of the forward and backward hook needle.

In answering the question, I would say in the first place that we have found it advisable not to use the bent needles in getting the vertical stripe, but to use the sinker attachment which is furnished by the machine makers for this purpose. We have found that the use of this attachment gives us less trouble, less waste, and less needle breakage, and that we are enabled with it to make a much wider variety of patterns. Therefore, my suggestion would be that, if possible, he change over and stop making the vertical stripe by bending the needles, as this will always be a source of trouble.

My ideas as to what might be causing his trouble with the conditions he has include the following: In bending the needle back, it is very easy to cause the latch not to make a good fit, which will cause a roughness and sometimes injure the needle. Also, if his first and last needles were brought a little closer into line it might help some. Further, he must push his sinker cams in as far as they can go, or they will not cast off the stitch. The reason he has this trouble more on artificial silk than on pure silk is because the latter is stronger and will withstand better any additional tension. CONTRIBUTOR No. 2345.

EDITOR COTTON:

I note that "Contributor No. 4589" is having trouble with fuzzy half-hose, and I would say in the first place that the 120 denier Viscose rayon he is plaiting over 70s/2 mercerized is too much yarn for a 220-needle 3 1/2-inch machine, as he indicates he is using. However, he can raise the stitch cam just a little, and this will help some, but will not clear up the trouble entirely.

If he could use a 60s/1 instead of a 70s/2 mercerized yarn, it would help him a whole lot by loosening the stitch just a little.

He wants to know why it is the same machine will not run rayon without "fuzzing" the sock, but will give a clean fabric from pure silk. The reason is that rayon is a hard yarn and has no gum in it, and when the needle pulls down in the cylinder to perform the stitch, the walls of the cylinder cut the rayon, leaving the fabric fuzzy. Whereas pure silk has a content of gum, and when the needle goes down the gum "gives," and a smooth fabric is the result.

C. M. (GA.).

EDITOR COTTON:

I give you below some of the things I have used to get away from fuzzy fabric on Banner machines with horizontal and vertical stripers. This is in answer to "Contributor No. 4589."

The machine builders make a special mouthpiece, No. 142, for plaiting. It has a high side on the running down side. These parts come soft, so they can be fitted to the cafrier ring, and then hardened after a fit is secured.

If the carrier ring is too low, the latches will cut the yarn and cause the fabric to be fuzzy. I would try raising and lowering the carrier ring.

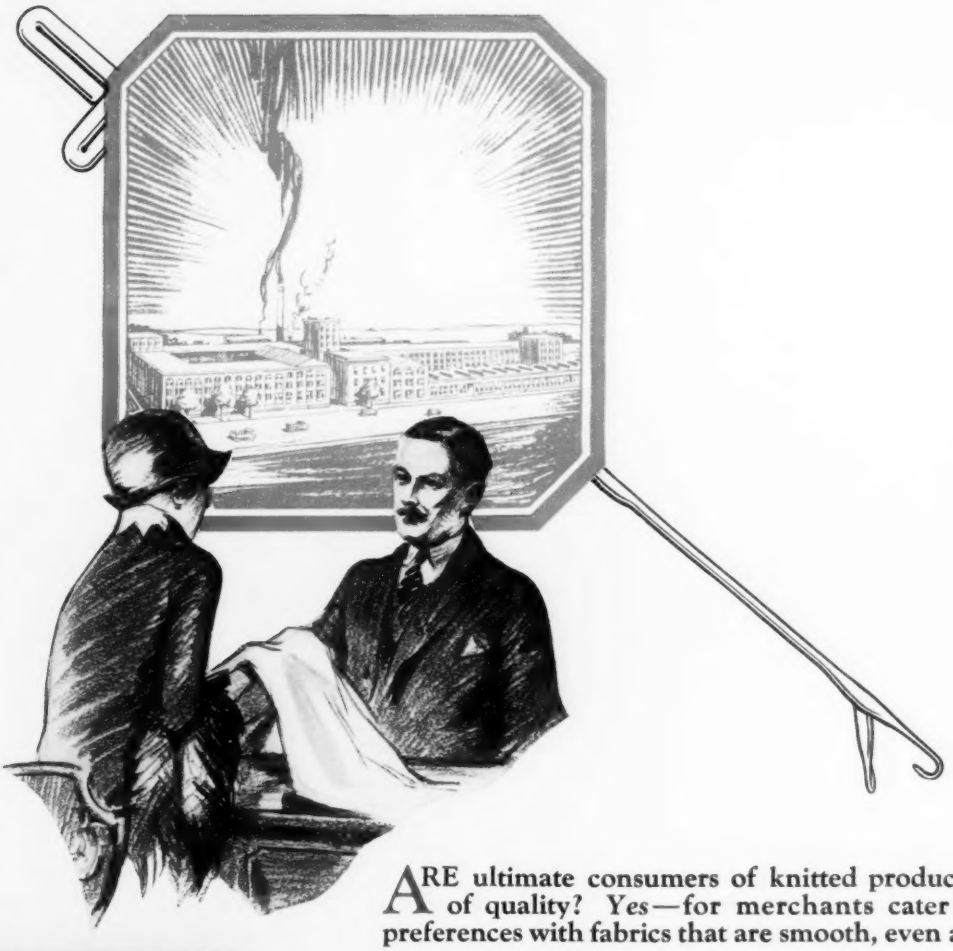
If there is too much tension on the yarn it will cause the fibers in the rayon yarn to break and make a fuzzy fabric. The remedy, of course, is to loosen up on the rayon tension; but if this causes poor plaiting, the next thing is to loosen on the mercerized yarn also.

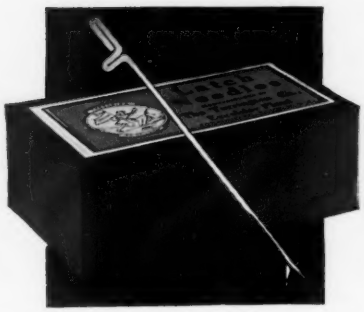
CONTRIBUTOR No. 2901.

EDITOR COTTON:

Fuzzy-looking hose on the Banner or any other machine using artificial silk can be caused by various things. I noticed the question of "Contributor No. 4589" on this sub-

Your needles~and retail sales





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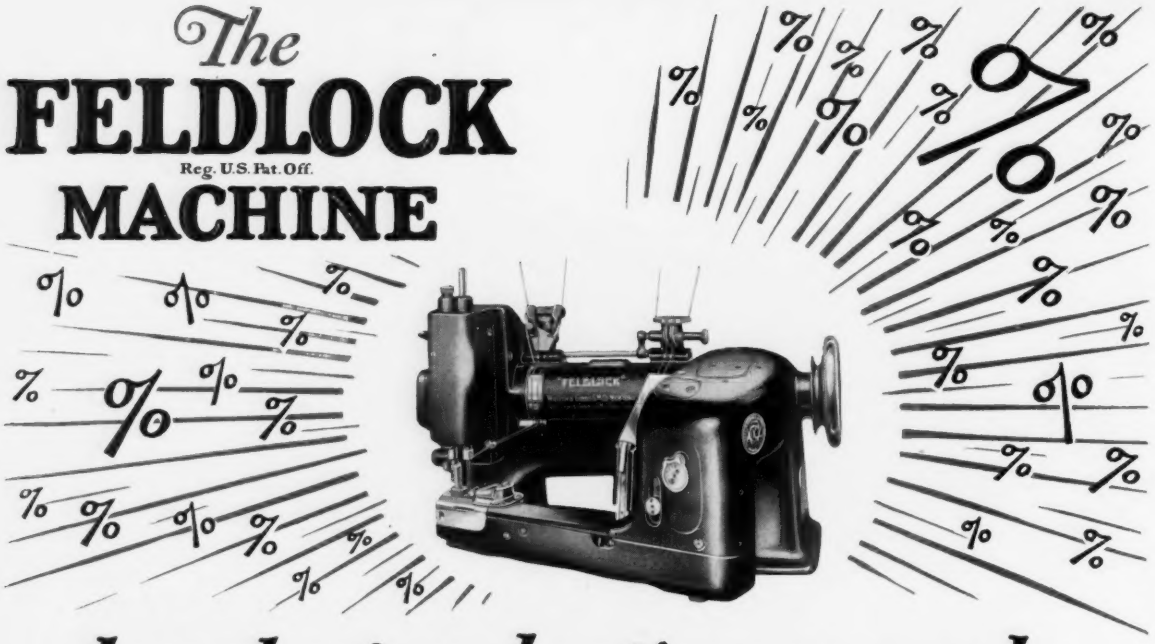

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ject, and I thought I would write you the experience I have had along this line. My suggestions on this problem would be as follows:

First, see that the carrier is not running too low. Also, do not put excessive strain on the artificial silk to make it plait, but use a sensitive compensating tension, such as the Pigeon type. As many porcelain leads or guides as possible should be used for artificial silk, and this yarn should not be allowed to run through any metal guides if it is possible to prevent this.

If the latch ring is run too low, it delivers the yarn where the latch and rivet are, and the closing of the needle latch on the yarn acts like a shear and chops the yarn.

If the artificial silk is given a softening treatment after dyeing, it will assist in laying the fiber, and I have known very good results to be secured by running the yarn through a waxer when winding.

On the horizontal stripe, the speed of the machine has some bearing on the results secured, and this equipment should not be run so fast as on plain work.

There should be an even tension on the needle, and none of the needles should be too tight in the cylinder slots.

BOB (CANADA).

A Cutting-Up Problem on Underwear.

EDITOR COTTON:

Through "Knitting Kinks," I should appreciate hearing from any underwear manufacturers who have tried the practice of using a calendering machine back of the Grand Rapids length machine. One of the biggest troubles in cutting up the suits after coming through the length machine is that the edges of the cloth are uneven, and with a calender installed just ahead, we could get an even width all of the time.

Any information furnished as to experience with this idea, its approximate cost, and the advantages and practicability, will be read with interest.

CONTRIBUTOR NO. 3431.

Range of Yarns and Fabrics for Certain Gauge Machines.

EDITOR COTTON:

In answer to your correspondent "No. 3425" who asked for a range of yarns and fabrics for certain gauge machines, will say that we are knitting yarns all the way from 30s to 12s carded on 10-cut, 30 gauge machines.

While you might not class this cloth made from 30s yarn on a 10-cut machine a firm piece of cloth, it is not, however, sleazy, and is very satisfactory for our garments.

We make a four-pound light weight boys' garment from 26s carded yarn on a 10-cut, 30 gauge machine. This I would call a very good piece of cloth.

We also make a boy's suit weighing 10 pounds on size 16, from a 13s yarn carded, on a 10-cut, 30 gauge, 17-inch machine, 25 stitches with a 30 per cent stretch.

CONTRIBUTOR NO. 67.

EDITOR COTTON:

Responding to "Contributor No. 3425" who is interested in securing the range of yarns and fabrics for different cuts of machines, I will say that it has been our experience that the yarn specified for a given cut by the machine manufacturer has proven about the best that can be used. The further we deviate from the yarn specified the more trouble we experience in producing a good piece of cloth. There are so many things that enter into this that it is necessary to do quite a bit of experimenting if deviating from the yarn for which the machine was made.

A. R. (N. Y.)

EDITOR COTTON:

"Contributor No. 3425" has developed a subject for discussion that should be of interest to a good many mill men, but I fear it is a subject that cannot be answered without having all the details of the particular case to consider. However, would say that while the manufacturers of knitting machines give a range of weights and counts of yarn suitable for each cut of machine, I have found that while in some places they hold true, in others they do not. For instance, it makes a big difference as to what quality of yarn is used in order to get good results. A combed peeler yarn might be run with a very tight stitch, which could be drawn down and make a very nice fabric, whereas, taking a carded yarn of the same number, on the same machine, with the same stitch, it would be impossible to knit it; so our mill has found it to be more of an experiment all the way through.

Fortunately, we have only 10-cut machines in our mill. These are all of the Scott & Williams type, which we consider one of the best machines for our work. We make only children's winter weight goods, using a good carded yarn. In the question put forth by your correspondent, he does not state what kind of a 10 pound suit is to be made. If this is a man's 10 pound suit I would say that it cannot be made without having the cloth sleazy. We make only sizes from 2 to 16, corresponding to the 20 to 34. On our age 16 or size 34 garments we are making a 9½ pound suit. We are doing this on the 10-cut machine with a No. 12 yarn, knitting it 24 stitches to the inch. We could very easily make this size in a 10 pound garment by knitting cloth 26 or 27 stitches, which would not perceptibly change the width of the goods coming off the machine. It is our idea that in order to get good results on a 10-cut machine that the yarn to be used should not be coarser than an 11 nor finer than an 18. Beyond an 18 very sleazy cloth will be made. Our machines are equipped with 36 gauge dial needles and 24 gauge cylinder needles. We hardly believe that there is any reliable table that can be used, as there are so many different things that enter into the knitting of a piece of cloth that would change these tables.

I trust that this information will be of some value to your inquirer. CONTRIBUTOR NO. 1101.

EDITOR COTTON:

In reply to "Contributor No. 3425" whose letter appeared in the "Knitting Kinks" section of COTTON and whose inquiry is in reference to the correct number of yarn to run on a certain cut knitting machine, I would say that in our mill our machines are all practically 10 cut and we have found that we cannot make a suitable fabric nor run this cut to advantage on a finer yarn than a No. 14.

Your correspondent also asks if it is possible to make a 10 pound union suit on this machine. Would say we have found that it is not possible to make a suit of this weight

on a 10 cut machine, for in getting down to a man's union suit that weighs 10 pounds it should be made on a 12 cut machine in order to have the cloth come out properly.

CONTRIBUTOR No. 1102.

EDITOR COTTON:

We have never heard of any table or rule showing the range of yarn counts or weights made on the different cut machines as requested by "Contributor No. 3425" in the "Knitting Kinks" section of a recent number of COTTON. So much enters into this question that it seems to us a table would hardly be practical.

Even the Government during the war did not give out a table as to how their underwear was to be knit and cut, but submitted a sample, from which the manufacturer was to be guided in producing the same garment.

CONTRIBUTOR No. 1103.

EDITOR COTTON:

In reply to "Contributor No. 3425" who wished to know the range of yarns he could use on a 10-cut machine with latch needles and when such work is inclined to get sleazy, I am glad to give you what our experience has been on this particular size.

We have been able to run single cotton yarn in numbers from 14s to 18s on latch needle 10-cut machines satisfactorily. We have also been able to run 2-thread work in counts equivalent to 11¼s, 13-1/3s, 16s, 18¾s and 20s. Fabrics made from these counts have proved entirely satisfactory and are not sleazy.

I trust this will give your contributor what he desires, or will at least aid him in his inquiry.

CONTRIBUTOR No. 1104.

Uses Glass Jars for Storing Parts.

EDITOR COTTON:

A good method of storing knitting machine parts, which can be seen at a glance without the use of a cabinet, is to use glass jars, set on specially constructed shelves. The advantage of this is that the parts may be seen at a glance without the necessity of looking through a cabinet for them. On the outside of the jar may be pasted a label showing the part number and name, which simplifies matters at inventory time. CONTRIBUTOR No. 4346.

Long Loops on the Mock Seamer.

EDITOR COTTON:

I note that "S. T. (Ga.)" is having trouble with long loops in the operation of his Scott & Williams mock seam attachment on a Model K machine, as described in the April number of COTTON.

This trouble was discussed and very well threshed out in the May, 1925, issue of COTTON in the "Knitting Kinks" section. However, I do not recall any points of information given that touched on this particular trouble.

When the machine transfers the welt and the seam starts, "S. T." says that the yarn clamp does not release the seam thread. This is sometimes due to excessive tension on the spring and yarn clamp. The only remedy in this case is to reduce the tension on the spring by bending it slightly up. The tension on the clamp is adjustable by means of a coil spring set screw and collar. The loose end of the seam thread getting between dial and dial cover is sometimes due to the dial cover not fitting down properly on the dial. If it fits down properly all the way around, just close enough for the dial to work freely, I cannot see how the seam thread can get between the dail and cover.

I have in some few cases found a dial cover out of alignment, where they would bind one side and leave an opening on the other. This is detected by pushing the cover well down on the dial and looking all the way around the dial to see if there is an opening, which can be very easily seen. The solution for this trouble would be a new cover if the old one cannot be bent to conform to the dial.

It might be well to check the seam finger to see that it comes down as closely as possible to the sinkers without binding, when the machine transfers the welt; also to see that the welt presser is forced in deeper while the machine is transferring. This helps to free the dial jacks from any loose ends that might be on them; it also will help to reduce the binding end of the seam thread.

If "S. T." has the latest seam attachment which Scott & Williams puts out, the one that pushes the transfer jacks out for four courses after the transferring of the welt, his troubles with long loops should be very few.

I do not say it boastfully, but I have twelve of these seam attachments which have been running for four years without much trouble, and I would just as soon have the machines with them as without them. O. K. (TENN.).

EDITOR COTTON:

In answer to the question asked by "S. T. (Ga.)" on machines making long loops when the seaming yarn first drops in and the last end does not slip from under the yarn clamp, causing it to go between the dial and the dial cap instead of under the dial.

First he says he knows his dial is set right. I will take this as meaning that the dial is centered correctly so the dial transfer jacks are going out in the center between the needles both in the makeup and in the transfer.

The dial could be too low and cause the welt to not feed properly down through the cylinder. This would cause the welt to push up against the dial. The welt presser will cause this same trouble.

Then the welt transfers, and the seaming yarn drops in, but as it cannot pass through under the dial and it will cause long loops here and at no other place, for after the welt goes down the seaming yarn can go under without any trouble.

If the dial is high enough and the welt is feeding down properly through the cylinder, I would next turn my machine by hand and watch the presser as the seaming yarn makes the first round. The welt presser must drag the seaming yarn from under the yarn clamp and throw it under the dial on its first start around. It might be that it is not coming in far and hard enough. This would cause the seaming yarn, when it got to the welt presser, to push the presser back and still stay under the clamp and cause it to go between the dial and the dial cap.

The welt presser could be coming in far enough and hard enough, but could be too round on the side next to the throat plate and could not get hold of the seaming yarn well enough to pull it from under the clamp. This could be fixed by grinding off some of the side of the presser next to the throat plate so it would be more straight or square in and have a better chance to hold the

yarn and pull it from under the yarn clamp and throw it under the dial.

Another trouble that will cause the seaming yarn to go between the dial and the dial cap, also making long loops or fringes, is that the dial walls at the ends of the dial may be too straight up for the seaming yarn to roll off and start under the dial. This is when the seaming needles take the yarn and start around the dial before getting to the welt presser.

This can be fixed by marking the dial closest to the seaming needles and take it off, leaving the dial transfer jacks pulled in at their proper places. Grind off the edge of the dial and lower part of the dial walls for about 1 1/2 inch, sloping the walls back at the bottom. Start four or five walls behind the seaming needles and grinding back.

Leaving the transfer jacks in their proper place will prevent grinding too deep in.

Do not grind any off the top of these walls, just grinding three-fourths of the way up and 1/16-inch at the bottom will make the yarn roll under freely if the take-up is working well.

Of course the dial must be polished up thoroughly after the grinding.

The yarn going between the dial and the dial cap can be caused by the dial not fitting up to the dial cap properly.

A three-ply yarn will give better results on a Model K mock seamer than a two-ply. It is stronger, and can be run with more tension on the take-up without breaking. This will help keep the yarn from hanging on every little thing, causing loops or fringe. L. S. (ALA.).

EDITOR COTTON:

This is in partial reply to "S. T. (Ga.)," who stated in a recent issue of "Knitting Kinks" that his mock seaming attachment on K machines is making long loops, in that when the seaming yarn drops into operation and the needle catches the yarn on the first round, the last end of the yarn does not slip out from under the yarn clamp, and instead of going under the dial the yarn goes between the dial and the dial cap, causing it to form these long loops.

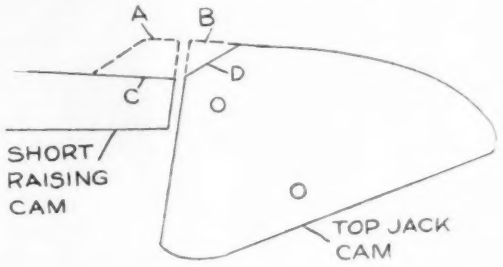
It is pretty hard to give a comprehensive answer by mail, as there are so many variable and local conditions that can enter into this question. However, I have discussed his question thoroughly with our head fixer, and will give below some suggestions which we have found profitable in eliminating this trouble.

First, the top of the hook of all the needles except the seaming needle should be pulled down even with the top of the sinkers. In connection with this, I might add that sometimes it might be necessary to cut down the cam bed plate about 1/8 inch where the needles are pulled down.

The finger carrying the seaming yarn should be ground thin on the bottom, so as to throw the yarn as low as possible.

If the transfer jack is bent out of line, preventing a needle from coming up and catching the main thread off of the transfer jack, the seaming yarn will hang on the yarn left on the transfer jack, causing these loops for possibly an inch and then stopping—or possibly just as long as that thread hangs there.

Our next suggestion to "S. T." would be not to use the short raising cam sometimes sent with the attachment, but to cut the corner off the top jack cam, as we have attempted to show in the accompanying line sketch. As your readers know, this short raising cam originally has a rise at the end the needles leave it, as we have indicated by the dotted line *A*. Also the corner of the top jack cam originally is shaped to a right angle, as we have shown by the dotted line *B*. Our suggestion is to grind the short raising cam down to a level, as is shown by the straight solid line *C*, and grind the top jack cam as indicated by



the solid line *D*. This, as your readers will understand, lets the thread swing under the center of the dial further before the needles are raised.

I suppose "S. T." knows that the tension on his seaming thread should be as loose as possible, and that the dial should be set as high as possible without jamming the bits against the throat plate.

There is another measure which might be carried out if he wishes, and that is to have the dial post cut off smooth on the bottom. The machine builders will do this, at a cost of about $5.00 each, I think. T. G. (N. C.).

EDITOR COTTON:

Answering the inquiry from "S. T. (Ga.)," as published in "Knitting Kinks," in regard to long loops with the mock seaming attachment on Model K Scott & Williams machines.

"S. T." says that when the seaming yarn drops into operation and the needle catches the yarn on the first round, the last end of the yarn does not slip out from under the yarn clamp, and instead of going under the dial, the yarn goes between the dial and the dial cap, causing it to form these long loops.

I had this same kind of trouble, and I found it mainly due to the yarn clamp which holds the seaming yarn while it is out of action. This yarn clamp should bear lightly on the dial cap plate. When too much tension is on the clamp, it holds the seaming yarn so firmly that when the yarn drops into action it pulls out from under the clamp too hard, resulting in this trouble. At times I have had to grind down the face of the clamp so that it will yield more as the yarn comes from under.

The take-up of the seaming yarn would cause this trouble if the improper tension were used. If the transfer bits are not drawn back out of action when transferring off of hem this trouble also will result. RYMI.

Team Work and the Lack of It.

EDITOR COTTON:

In regard to efficiency and team work, I want to ask the various readers of COTTON to give their opinions on the following questions:

What is the duty of a hosiery mill superintendent, or

How White is "Ivory"?

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the superintendent of a spinning mill?

Understand, I mean should he be ignored by the manager, and should the manager go over his head and give orders to the employees without the superintendent's knowledge?

Should the superintendent be consulted before the manager tries some new stunt?

Should the manager call minor help to his office and question them as to their opinion on how this or that should be done, without the superintendent's presence or knowledge?

Should the manager listen to petty stories or complaints from the help, or should he refer the matter to the superintendent first and let him solve the problem and settle the trouble?

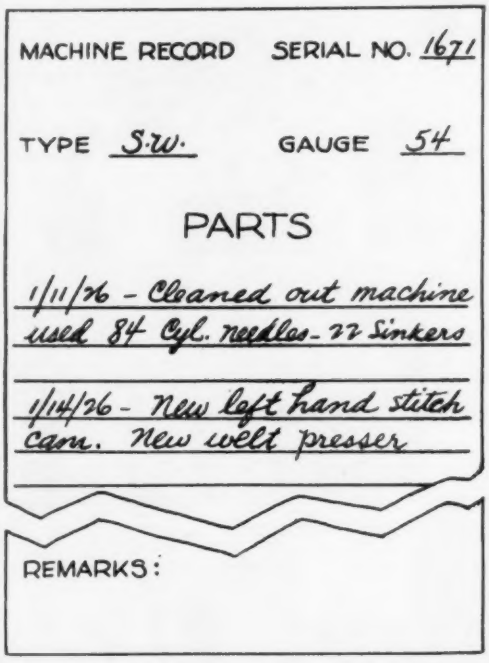
Is a manager who listens to petty stories from the minor help without first getting the superintendent's version of the matter qualified to be a manager?

What I want is opinions on the questions asked, and I know every reader is welcome to express himself for publication in COTTON. CONTRIBUTOR No. 44.

Keeping a Record of Parts Used.

EDITOR COTTON:

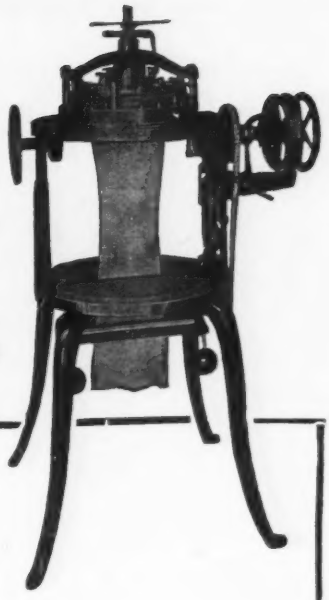
Keeping a record on each knitting machine, as to what is done from time to time, is valuable to both the foreman and the machinist. Where a system of cleaning machines is in force, it is useful to know the number of needles, sinkers, etc., used. If a new machine part is put on, this should be


MACHINE RECORD SERIAL NO. 1671
TYPE S.W. GAUGE 54
PARTS
1/11/26 - Cleaned out machine used 84 Cyl. needles - 72 Sinkers
1/14/26 - New left hand stitch cam. New welt presser
REMARKS:

recorded. A machinist may be working on a machine for a certain trouble, and he may think that the stitch cam is probably defective, but if he has a record of these things, he can tell readily whether or not this part has been recently changed. A convenient record form of this sort is shown in the accompanying illustration.

CONTRIBUTOR No. 4344.

The Sun Never Sets On Brinton Machines



THE popularity of Brinton machines is not confined to the United States, for it is international. Brinton machines, in fact, are used today in every textile center of the world.

Such world-wide recognition is proof of two things: First, that the basic idea upon which Brinton machines are made is correct—second, that the factory building these machines turns out a product which lives up to customers' expectations.

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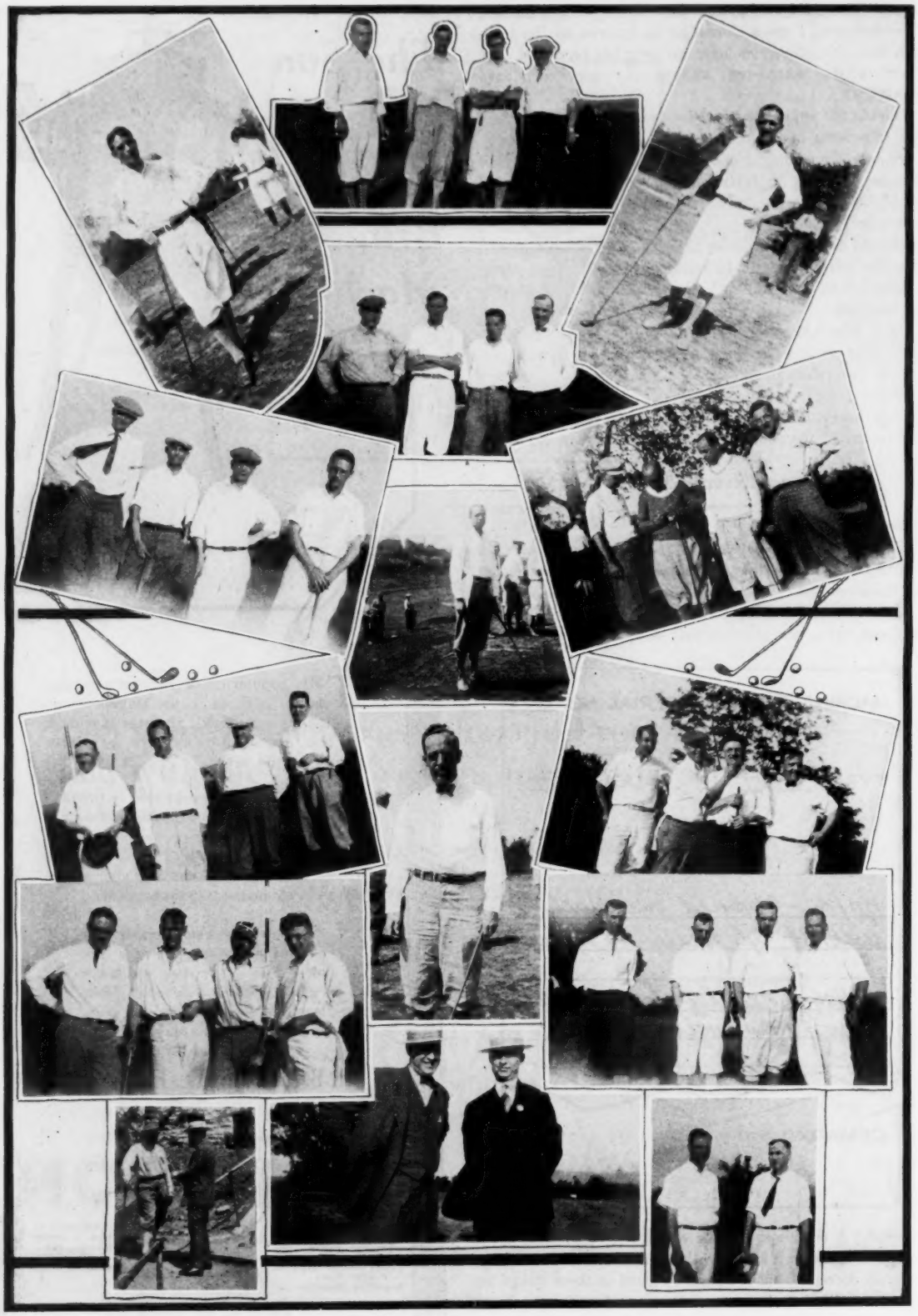


Officers and privates, prize winners and some who didn't as caught by the camera at the golf course when the yarn men entertained the knitters at Chattanooga, Tenn.

Here they are as posed before the Chattanooga Golf and Country Club.

Chattanooga Yarn Association Entertains Knitters at Enjoyable Affair.

A thoroughly enjoyable time was given approximately a hundred attendants at the first annual golf tournament and outing conducted on April 29th and 30th, at Chattanooga, Tenn., by the Chattanooga Yarn Association for southern knitters. The affair was such a tremendous success that it was decided to make it an annual event. Evidence of the appreciation of the guests is seen in the warm compliments received by the members of the Association in regard to the "party."

Tom Moore, of the National Yarn and Processing Co., is president of the Association, W. S. Lawson, of Standard-Coosa-Thatcher Co., is vice-president and was chairman of the entertainment committee; R. H. Griffith, of Harding, Tilton & Co., is secretary-treasurer; and French Campbell, Jr., of Campbell and Van Olinda, was chairman of the golf committee.

The entertainment consisted of a luncheon Thursday, eighteen holes of golf Thursday afternoon, a baseball game Friday morning, a luncheon Friday, eighteen holes of golf Friday afternoon; and a concluding banquet Friday night. The outing was held at the Chattanooga Golf and Country Club.

The golf tournament was the main feature of the outing, and attracted twelve foursomes who played eighteen holes on Thursday and eighteen holes on Friday, making a total of thirty-six holes handicap in competition for the Yarn Association trophy, a silver loving cup put up by the association, to be played for each year and to come into permanent possession of anyone winning it any three years.

Arthur S. Johnson, Jr., southern representative of the Fidelity Machine Co., led the field, winning a leg of the association trophy, with Joe Zens, general manager, United Hosiery Mills Corp., as the runner-up, the prize for this position being a silver vase.

In the low ball contest for knitters only, a golf bag was presented to each the winner and runner-up, who were Mr. Zens and Bob Davis, respectively.

The low ball score on Thursday, was won by Mr. Zens, with the same contest on Friday going to Johnson, the prize being a golf club in each case.

For the ringer score, handicap applied, Bob Smith, of Smith, Drum Company, and Wilbur Lawson were tied, dividing the prizes—a cigarette case and carafe set.

Consolidation prizes—safety razor sets—were awarded William J. Rooke, of COTTON, Atlanta, and Floyd Northcutt, of the Marietta Knitting Company.

Friday morning the competition took the form of a baseball game, played at the United Hosiery Mills park, between the Yarn Peddlers and the Knitters. It was a heetic affair, played to the accompaniment of "Bevo" and pretzels with a host of fans completely filling the grandstand and supporting their favorite with cheers and jeers and advice. The box score shows that the Yarn Peddlers won, by a score of 11 to 4. They were credited with only four hits against 7 for their opponents, but no errors were charged against either side.

Golf was resumed on Friday afternoon, and on Friday evening, a splendid banquet concluded the occasion. Tom Moore was master of ceremonies at the banquet, assisted by the chairmen of entertainment and golf committees. Musical entertainment—"Lawson's Follies of 1926"—in the form of dancing, and vocal and novelty acts, were well received. The prizes won in the golf tournament were presented at the banquet. A special feature was a Charleston contest, in which J. A. Huff, R. C. Aycock, S. R. Read, Bob Davis, Don Hurlbut and Dick White entered, Read and Hurlbut taking away the honors.

The Yarn Market

Philadelphia, Pa., May 15th, 1926.

The latter part of April and the first half of May brought a spirit of good feeling and hope into the Philadelphia yarn market—that business for the second quarter of 1926 would still measure up to a more or less satisfactory volume. Sales for the first quarter ending with March were comparatively healthy, and with a material improvement during May and June, the first half of the year could be turned into a measurably profitable six months as a result.

Optimism along this line did seem to be based largely upon theory, it is true. Delving back into the platitudes used during the slumps following the war period, their logic seemed to be that a dog can go only half-way into the woods, for from that point he will be on the way out. Because there has been such an extended period of dullness prevailing in these quarters, that factors feel the bearish attitude is the logical course of reasoning to follow.

While sales showed up in total volume during the first quarter, and to a certain extent up to this writing, in a way more or less pleasing, it was observed that the average poundage of orders was considerably decreased, indicating an enlargement of the piecemeal buying practice of filling in for orders rather than stocking for future use; and also the opposite of what might be expected apparently occurred since the smaller-sized orders did not bring prices higher than would ordinarily come with reduced purchases.

Speaking in terms of fact, business has continued to rock along for the past month in about the same fashion which has prevailed for several months. Weather conditions unfavorable to a regular movement of manufactured products through the jobbers and wholesalers has had a restricting effect upon yarn sales, and this influence, added to the inherent practice of the yarn consumers to secure their supplies as they received business for themselves, and the fact of a more or less plentiful supply of yarns available, has produced a continuation of the same condition that has become familiar in the market. Energetic efforts on the part of manufacturers and jobbers to move materials in spite of the adverse weather, and a lessening of that condition's effect, has contributed some toward the more hopeful outlook on prospects found among the distributors.

According to good information, there has been comparatively little short selling of cotton yarns, even since the first of the year, the low prices and lack of actual business in quantity being attributed more to a stricter competition between sellers.

The spinners have endeavored to hold their ground. It is admitted more or less generally that yarn prices have found a level below that at which the spinning mills can economically produce. With their co-ordinated activity, the spinners have held firmly for their rates, and distributors found it necessary to confer with their mills on price in cases of prospects for orders; finding usually an adamant attitude.

The increased competitive effort in moving yarns affected to a large extent the reduction in the quoted prices for sale. Generally speaking, the level of rates dropped off until the latter part of April, when the curve straightened out on a horizontal plane which has been retained up to this point so far as the list as a whole is concerned.

On the other hand, it might be observed, where there are sales passing through under the accepted quotation rates, there are as well orders being taken at figures higher than the average. It is the opinion that at the present time considerable attention is being given to yarn grades to the extent that this feature is having more influence on the price paid than delivery date. The users seem willing to pay for the kind of yarn they want, and the spinner who makes it in the required grade is receiving business that is not to be overlooked.

Floor covering yarns took first honors on business consummated during the first part of this month, with weaving yarns coming second, although the transactions were on smaller quantities than are usually accepted to indicate good business.

Prices on the Philadelphia market on May 14th follow:

Single Skeins.

4s to 8s	28	10s	29½
12s	30	14s	30½
16s	31	20s	32
24s	35	26s	36
30s	38½		

Single Warps.

8s	29½	10s	30
12s	30½	14s	31
16s	31½	20s	32½
26s	37½	30s	39½
40s	49		

Carpet and Upholstery Yarn in Skeins.

8s 3-4 hard white warp twist	28
5s and 9s 3-4 tinged tube	25
8s ¾ hard twist waste	23½

Two-Ply Skeins

8s	28½	10s	29½
12s	30	14s	31½
16s	32	20s	32½
24s	36	26s	27
30s	38½	40s	47

Two-Ply Warps.

8s	29½	10s	30½
12s	31	14s	32
16s	32½	20s	33½
24s	36½	26s	37½
30s	39½	40s	50

Frame Spun Carded Yarn on Cones.

8s	28½	10s	29
12s	29½	14s	30
16s	30½	18s	31
20s	32	22s	32½
24s	33½-34	26s	34½-35
30s	36½-37	40s	47
30s double carded	38	30s tying-in	35½

Two-Ply Combed Peeler Skeins and Warps.

8s to 16s	46	20s	48
24s	49	30s	50
40s	58	50s	63
60s	73	70s	85
80s	1.00		

Single Combed Peeler Yarn on Cones.

18s	42	36s	54
24s	44	38s	55
30s	50	40s	58

Mule Spun Carded Yarn on Cones.

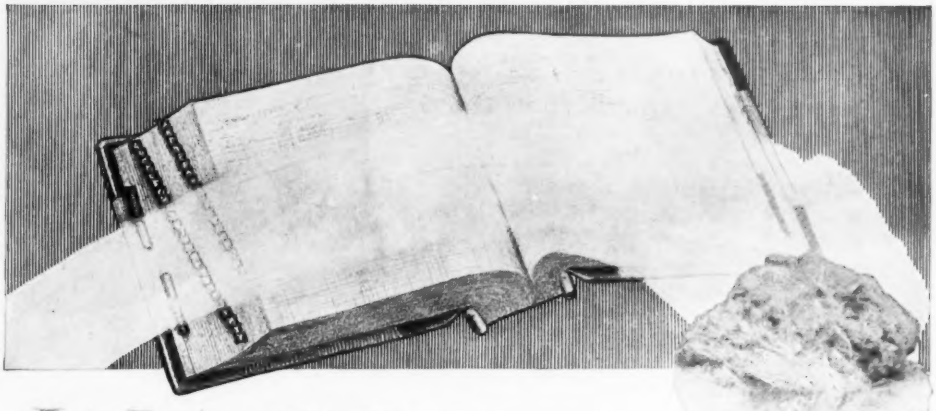
10s	35	12s	36
14s	37	16s	38
18s	39	20s	40
24s	41	26s	42
30s	43	40s	52

Mule Spun Combed Peeler Yarn on Cones.

10s	44	12s	45
14s	46	16s	47
18s	48	20s	49
22s	50	26s	53
28s	54	30s	55
38s	60	40s	65
36s	57		

W. E. STEEL has resigned as overseer of carding at the Washington Manufacturing Company, Tenille, Ga., and accepted a similar position at the Lullwater Manufacturing Company, Thomson, Ga.

W. T. MORTON has resigned as overseer spinning at the Balfour Mills, Balfour, N. C., and accepted a similar position at the Mollohon Manufacturing Company, Newberry, S. C.



WASTE

wipes out profit

WASTE at the loom where the value of the yarn is greatest, it having passed through the many costly stages of preparation, is an important factor in the cost of finished cloth, and yet, as waste has always been considered a necessary expense in textile mills, it has never been sufficiently considered in seeking ways to reduce the cost of production.

Now, through the effects of keen competition and increasing production costs, cloth mills are turning to the elimination of waste as one means of reducing the manufacturing cost of their product.

The Leesona organization, with thirty years experience in the development of scientific winding, has perfected a practical system of reducing waste by preparing filling yarns for weaving by Universal Winding.

Figures compiled at scores of cloth mills, operating under many different conditions, conclusively prove that the use of Universal Wound Filling substantially reduces to the point where saving materially reduces the cost of the cloth as it leaves the loom.

We shall gladly submit actual proof that the resultant saving from preparing filling yarn for weaving by Universal Winding will more than pay for the preparatory process.

UNIVERSAL WINDING COMPANY

Providence. Chicago. Utica. New York. Philadelphia. Charlotte. Atlanta.

BOSTON

Montreal and Hamilton, Canada

DEPOTS AND OFFICES AT MANCHESTER AND PARIS

UNIVERSAL WINDING

In Your Own Mill

We offer you the services of

An Expert Weaver *An Expert Knitter*

WE OFFER you, absolutely without obligation on your part, the services of two practical mill men who have recently joined our newly organized Service Department.

One of these men is an expert in weaving and finishing; the other an expert knitter. Both have had long experience and are considered as being at the top of their professions.

We want them to work *with you*—to help you toward a better use of rayon and to solve the many problems involved. Either one of these men will be glad to make a trip to your mill and we hope that you will not hesitate to call upon us when the need arises.

Our success depends upon *your* success in the use of "Industrial" Rayon. That is why we have organized a Service Department. A little later, we plan to expand this department to include practical help on other problems connected with rayon (dyeing for example). In the present early stages of the rayon industry such a service should be of the greatest importance to you and to us.

The INDUSTRIAL FIBRE COMPANY Inc.

148 MADISON AVENUE

NEW YORK CITY

Sales Representatives:

T. E. Hatch Co., Boston Mass. J. P. Dugnan, Gloversville, N. Y. Glenn Commission Co., Richmond, Va. E. W Knapp, Philadelphia, Pa. O. J. Caron, Chicago, Ill.

The Knit Goods Market

Most divisions of the knit goods wholesale markets are due for a recovery soon from a condition bordering on depression felt by textiles generally. Contrary to prediction, business in May failed to show that spurt from the April lull that there was every reason for anticipating, in the order of things in the commodity and securities markets, as a broad proposition.

Hosiery jobbers as a body complain of light distribution and a disposition of retailers to hold commitments down to what amounts to practically requirements for a week or two. This slowing down in hosiery hardly could be laid to weather vagaries, which were held accountable for the unusually light movement of summer underwear. Some little improvement in sweaters in the primary markets could be detected, but orders for fall still are being withheld to an extent that threatens much plant idleness and a scarcity of immediate delivery goods in the event sweaters come back to their former popularity in only fair degree. Possibly the brightest spot in knit goods other than silk hosiery just now is in bathing suits, deliveries of which have gone out on a very satisfactory basis, taking all things into consideration.

It cannot be said that the British strike trouble was accountable for the unhappy situation in the domestic markets for textiles, for it existed before the strikers undertook to override government, but it probably will be found to have been a factor in delaying revival. More potent have been strikes and threats of strikes in domestic factories and intimations that demands are for shorter workdays and increases in wages are to be enforced while manufacturers generally find it difficult to maintain worktime schedules on current production costs.

In the somewhat chaotic state of trade, there necessarily has been some curtailment in output of staple goods and delay on the part of merchants in placing orders, so that, logically, demand for goods must be accumulating. Unless there be increased cost of producing and, in sequence, higher prices for the consumer to pay, trading in knit goods may be expected to show considerably more life this and succeeding months.

Hosiery

There is no doubt that much business in silk hosiery has been held back by the refusal of large manufacturers selling to jobbers to reduce their prices. Yet mills, with a very few exceptions, continued operating steadily to capacity, and some report having sold to September at the prices ruling at the beginning of the year, some orders being declined. Mills in which such a condition exists are favored with a strong clientele and known to be dependable for maintenance of standards and deliveries as per schedule. A few manufacturers who closed their plants for a day or two on several occasions did so voluntarily as a matter of expediency in circumventing arrogant agitators trying to force obedience to intolerable regulations dictated by a knitters' organization.

Offerings of what for the time is referred to as short boot hosiery are erroneously interpreted as meaning the market is oversupplied. This construction of silk hose is to be had at prices slightly lower than quotations a month or two ago, but the silk-to-top and the narrow hem stockings are readily marketable at the old lists. It was a clever expedient to use less cotton and more silk for maintaining schedules, but recourse to it by so many manufacturers of chiffons left numbers with more of the 20 inch silk boot than at times seemed desirable. But it is going into distribution in certain markets where chiffons never had taken so strong a hold as in the fashion centers, and at pretty nearly value.

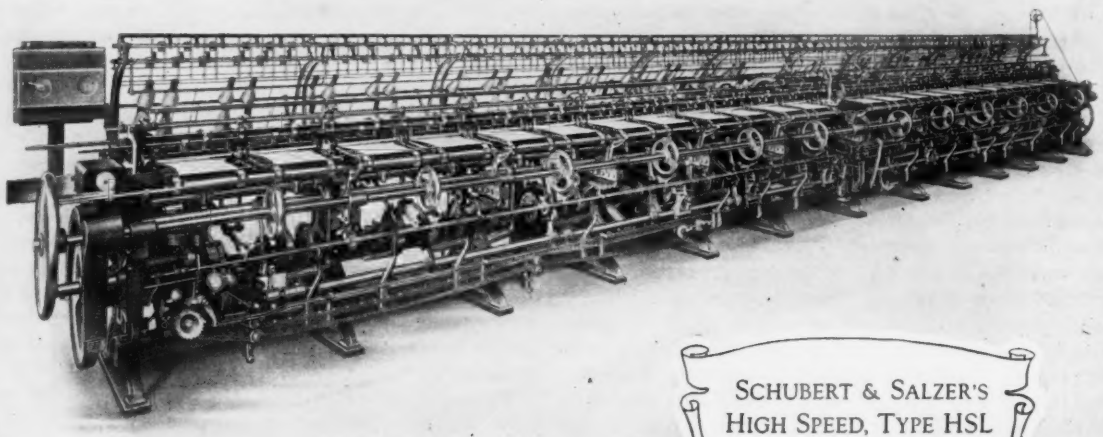
Direct-to-retailer manufacturers, who were the first to mark prices down after raw silk had declined around a dollar a pound, are by no means unanimous on the subject of reductions. Several, among them one of the better known in the hosiery trades, regarded improvement in construction, with prices as they were, preferable to a markdown. Their prices, they point out, are established among retailers and consumers alike, and any reduction to the dealers would have been of so little moment that it hardly could have been passed to the consumer—always the last to benefit by a decline and the first to be hurt by an advance.

It would appear that in the present market situation the direct-to-retailer mills selling under their nationally advertised brands are in a more favorable position than most of those which sell to jobbers. Selling brand backed by merit and a mill's reputation is a simpler matter, in a declining market, than selling the unidentified. In fact, a leading jobbing house executive is authority for a statement that "most jobbers are losing their grip on the hosiery business because, for one reason, they do not own, or control, a trademark, and for another reason, that they often destroy the value of a name by having a manufacturer cheapen the product distinguished by the name, in order to reduce their cost and increase their margin of profit. The Dexdale Hosiery Mills, Lansdale, Pa., is credited in the trade with having demonstrated the advantages to be derived from distributing direct through retailers under a brand and adherence to standards which gave the brand its value as a silent salesman.

The Dexdale, manufacturing full fashioned and spring needle hosiery, a month or two ago established in the fashionable shopping district of Philadelphia a small store fitted up in lavish manner, where Dexdale hosiery exclusively is sold. The purpose of this store, it is stated by the mill management, is "to stimulate public interest and buying activity in the community which it serves and to bring about a closer contact between the manufacturers and the habits of the consumer, to enable the manufacturers to more quickly adjust their policies and product to the demands of the public."

Two shoe stores in Philadelphia feature Dexdale hosiery exclusively. Neither is in the fashionable shopping center, but each obtains a certain prestige for its hosiery by the fact there is a purely Dexdale store in the section of the city where the exclusive shopping public always is found. Under an arrangement with these stores, the Dexdale company functions in a way calculated to promote mutual welfare, and that the arrangement, varying to meet certain conditions, is satisfactory is indicated in the establishment of relations with retail dealers in other important centers of population—for example, New York, Boston and Miami, where Dexdale hosiery is being featured exclusively in leading shoe shops.

"Full Fashioned Hosiery Machines"



SCHUBERT & SALZER'S
HIGH SPEED, TYPE HSL
24 SECTIONS

TYPE HSL 24-Section Hosiery Machines—Why?

IN EVER-INCREASING numbers manufacturers are installing Schubert & Salzer High Speed Full Fashioned Hosiery Machines, TYPE HSL, because—

They realize that 24-section machines, running up to 65 courses per minute, will give the absolute maximum of production on a per section basis.

And as to quality of fabric—just compare.

Schubert & Salzer's High Speed Full Fashioned Hosiery Machines TYPE HSL produce a fabric noted for its fineness and complete absence of slaziness.

We will gladly arrange for a demonstration in a plant near you.

ALFRED HOFMANN, INC.

West New York *New Jersey*

Thus the woman's shoe shop becomes a more conspicuous factor in fixing hosiery style, it is believed, and that half hose will play a still more important part in the business of men's shoe stores is a foregone conclusion, while department stores probably will find it advantageous to merge their hosiery and shoe departments. It does not seem an extravagant notion that the jobber, to hold his crossroad business in hosiery, will have to distribute advertised branded goods, as otherwise he will lose out more and more to the catalog houses in proportion, as he already has felt the influence of powerful chains of stores, as valuable to many mills as the jobber ever was in his palmiest days. Jobber hesitancy this spring to stock up with hosiery for more than a few weeks is not difficult of explanation. Meanwhile retailers have had a volume business in hosiery, but each year this business must be divided among more stores, and this being true in other lines, may account for the addition of hosiery to the stocks of stores in which it hitherto was not carried. Distribution is receiving far more attention, as a problem, than production.

Late statistics indicate continued enormous expansion in the full fashioned industry. For March there was an indicated increase of over 14 per cent over February and a gain of 40 per cent over March, 1925. The March increases in seamless silk were 21 per cent over February and seven per cent over March of last year. The figures of course apply to women's silk hosiery.

Silk for women's latch needle hosiery, it appears, is yielding to silk in combination with rayon, the combination being still popular in branded lines to go over the counter at a dollar a pair. These seemingly have lost little in volume of sales, but it is believed the unbranded, in which there has been drastic price cutting by a number of manufacturers, has lost considerable ground, as has all-rayon boot hosiery, also a subject of price competition recently, a markdown of around 25 cents a dozen having been recorded in several instances. The rayon stocking as a 50 to 75 cent price proposition seems not able to hold out against latch needle silk at a dollar and the combination yarn at a still lower price, both of which have been to some extent crowded by spring needle hose. Spring needle chiffons have been in steadily good demand, some mills being sold well ahead and rushed for deliveries. Prices in this division are slow to weaken. There has been some downward revision in latch needle hosiery, however.

Chiffons, in bright colors, which for some time have been the life of the market for women's silk hosiery, are expensive both as a luxury and a manufacturer's expedient, it is shown in the greater number of pairs required for obtaining the service gotten from service weights, and in an increasing number of returns with which the manufacturer must reckon in determining his cost. It is contended that more than 75 per cent of the sheer hosiery returned by retail stores because of imperfections was damaged by careless handling by either salesperson or customer. Adjustments are expected by the store and the manufacturer usually must make them or risk the loss of a perhaps desirable account. This phase of the cost of merchandising chiffon hosiery is treated in a bulletin of the Rollins Hosiery Mills, Des Moines, Ia., selling to retailers.

In some quarters there is heard intimations of a probable trend from chiffon hose to the semi-sheer, of about eight strand silk. Should this come to pass it probably would be found that production of full fashioned had been pushed to a stage where it might not be readily absorbed. Many jobbers would welcome a return to heavier fabric and some manufacturers do not doubt that chiffon demand has seen its peak. Present production as a whole appears to be ample, so that it must be apparent that any change in style that would diminish consumption would precipitate a situation such as many interests have been predicting is inevitable. These predictions, like alarmists' hints at a scarcity, have been heard so often and during so many years that they have lost their influence in the direction intended.

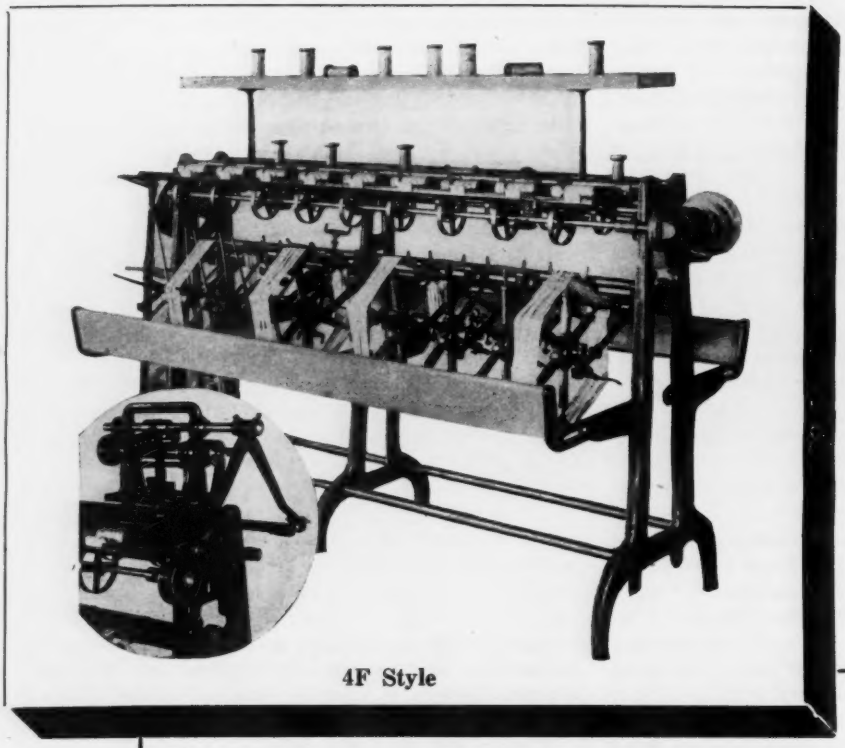
There is a full fashioned field that a few manufacturers are exploring seemingly with satisfactory results. Little is heard of full fashioned hose of silk and rayon in combination. The Mammoth Hosiery Mills, Philadelphia, is one of a comparatively few establishments which have been exploiting such a stocking for two years or more. An executive of the Mammoth says the company's sales are increasing, and that the line has been introduced successfully in the Central American markets. It was a big seller last year in a store in Boston, and there has been no letdown in the orders from that establishment, it is stated. The company is installing additional machinery, which will provide for an increase of 65 per cent in production. It is understood there are features in the construction of the stocking that are not commonly employed, and that one important process is virtually controlled by the mill in question. The stocking sells at $1.25 to $1.35 a pair.

Another and larger seller is the silk-and-rayon stocking comprising a full fashioned foot on a seamless knit leg. It is a dollar stocking and a well known jobber said, "It is the bread and butter of our hosiery business."

The Federal Trade Commission has taken testimony in a complaint against the use of the term Form Fashioned on the ground that it may be confused with full fashioned. Another case for the Commission is in process of preparation. It involves the question of so marking seconds of hosiery that dealers would have difficulty in disposing of the stockings as regulars.

In the contracting for wool hosiery for fall it is clearly indicated that women are expected to wear plain colors and that in men's half hose wild patterns will again prevail. A fair amount of business has been taken by a few leading mills in both, jobbers being less reluctant to contract for men's than for women's, for there remains the question whether chiffons may not next winter repeat their last winter's success as a favorite. A New England mill last month had sold its production of wool half hose up to September, and it is understood several are at work on fair size orders. Orders thus far placed by jobbers show a preference for the collegiate in design, and one that is the more hideous of a mill line is the better seller, it is stated by a well-known factor.

There is heard the periodical prediction that fancy half hose is on the decline. In this instance the forecast seems to be predicated on the fact most of the mills which had been recognized as among the leaders in novelties are experiencing a lull. This probably might be rightfully charged to excess production and a plethora of patterns. Dealers are more selective in their choice of designs, it is noted, and are buying closer to needs, none relishing the idea of having passe patterns as a leftover and many uncertain of the tenure of existence for novelty socks of any description. Several northern manufacturers who over-



4F Style

Built Especially To Wind RAYON

THIS high, narrow type of winder, built to wind Rayon and hard or soft silk requires only a minimum of floor space.

Either the automatic screw traverse, or the regular patented cam Traverse with adjustable throw can be adapted to this Atwood Machine to wind perfect, smoothly wound bobbins.

The Atwood is the only winder made with gear gain adjustable swifts.

❦ ❦ ❦

The 5B Spinner

This spinner represents the highest point in silk-throwing evolution. It doubles and spins up to 14 ends of silk or Rayon, and produces perfectly wound bobbins. Improved features such as the 2 inch feed roll, spindle swing holder, and chain and sprocket drive insure uniformity of production.

Specifications and prices on request.

The Atwood Machine Co.

Established 1863

Stonington, Conn., 95 Madison Ave., New York City

Southern Representative: H. L. McCall, Cutter Bldg., Charlotte, N. C.

ATWOOD

SILK THROWING MACHINERY

produced of lines to sell at 75 cents to a dollar a pair are disappointed with the cold reception accorded them, and as they are rather heavily stocked, they are less enthusiastic over pattern hosiery as a whole. It is the 50 cent sock that holds the record for volume and safety.

A manufacturer in interior Pennsylvania who was left with a considerable stock of novelty half hose had opportunity to dispose of the lot to a chain of stores looking for something at a price for a special sale. The buyer was smitten with the range of patterns and the manufacturer came through with an unexpected profit. He says he will knit no more fancy half hose except on order for some large account.

While there are market factors who do not doubt stripes, blocks, dots, dashes, etc., which have been conspicuous in the designing of half hose, soon will be abandoned, they look for no immediate return to plain colors, believing novelties in one form or another will be worn for some years. The next outstanding picture sock will have an embroidered instep, white on black, for example, with navy standing a fair chance of a front place in staple colors to be worn. The sock was worn rather extensively by good dressers some 12 to 15 years ago, the real aristocrat of half hose presenting open work construction over the instep and as side clocking. It is stated a manufacturer in Reading, Pa., has a mechanical attachment for applying the embroidery during the process of knitting which he hopes to use quite extensively.

It need be not surprising if the polkadots of a few years ago have a comeback in the slow transition from maddening patterns to the severely plain. It was popular for a time and some factors say it will be a logical successor to the stripes and blocks, etc. If the polkadot be accepted, as a step from the collegiate and cowboy designs, there should be a revival of activity in the hosiery printing industry, where there has been less to do with the use of devices for knitting stripes into the stocking.

Silk half hose in plain colors promise better for the comparatively few manufacturers who have not only continued their production but increased their output. A popular silk sock is of 12 strand construction, to sell at 75 cents a pair. Two manufacturers, one in interior Pennsylvania, the other in Milwaukee, are making an especially serviceable stocking into which more silk enters, for effect in the top and heel splicing, and with more mercerized yarn being used for strengthening the heel and toe. Probably no better silk half hose, at the price, is being offered in the American markets. It is fairly priced at $4.37½ a dozen to jobbers. So distinctive is this sock in superiority of construction that jobbers say it has little to fear from competition with lighter weight socks, lacking features, designed as half-dollar sellers.

Distributors reported last month a somewhat unexpected interest in full mercerized 220 needle half hose, at $1.70 to $2 to jobbers. Some fair size lots were sold, and among the larger contracts was one by which a Pennsylvania mill will for a time be receiving periodical shipments from a mill in the South. If it be true, as is stated by a person familiar with the terms of the sale, that such a sock can be turned off at 25 cents a dozen less in the South than in Pennsylvania, it would seem needless to go further for reasons why so many rural Pennsylvania mills find it more difficult than ever to compete in seamless lines.

For the next few weeks interest in juvenile hosiery will be centered largely in the showing of samples for the 1927 season. It is known there are to be some interesting new patterns and a broader showing of plain colors full length for young misses, but this is a matter in which buyers seem less interested than in prices for the next season.

Price competition in the very middle of the distribution season about to end, quotations being slashed by 25 cents a dozen for half dollar hose, may be accepted as meaning that unless the next season opens with something of a bang, there will be manufacturers ready to inaugurate a primary market level that ought to have a substantial reflex at the counter in favor of the consumer. Manufacturers, so far as they have expressed themselves, hope no mill will name prices until a week or two after July 4th. That there will be some quiet showing of samples before the end of June is not doubted, and it is stated by several jobbers that they have had backdoor visits from representatives of two or three mills eager to submit their samples. It may be recalled there was considerable of gumshoeing about the market in June last year, preliminary to the opening of infants socks. Some interests look for shorter socks, without cuff tops, to be well received for 1927.

In misses' hose there is, apparently, a strong drift to full length in plain color silk and silk and rayon in combination—the kind that women and the older misses wear. This raises a question as to the fate of fancy seven eighth length with turnover top for fall and winter. Several manufacturers of the sports short length say they can detect a growing interest in the full length, and several leading makers of the latter report sales for winter and early spring were unexpectedly heavy. It was noted, too, that among the really good sellers in misses' hose was a full length derby rib in plain colors. Some of the 1927 hosiery problems are casting their shadows over the market horizon while some of those for 1926 remain to be disposed of.

Underwear.

At the end of the first half of 1926 it appeared, from conditions known to exist among some important mills, declarations of substantial jobbers, and trade gossip going the rounds in whispers, that not much more than one half of the underwear to go into distribution this year had been contracted for. There had been comparatively few days when retailers could boast of a rush for men's summer underwear. But it developed that there was enough consumer buying to break dealers' assortments, for the small-class retailers were buying after each day of a spurt in their sales. This was reflected in reorders coming to mills from jobbers, but the latter, it was demonstrated, were operating no less conservatively than their patrons, the small stores. As matters stand, there should be witnessed an active underwear market throughout the succeeding two months, with jobbers and retailers buying for needs from week to week and having the bulk of the goods reach them by express.

Despite the not satisfactory situation, in either summer or winter weights, there is heard some talk indicative of an intention on the part of nainsook manufacturers to open their lines early in July for the next season. There had been rumors the opening would be staged in June. If such a plan had been contemplated, it is believed to have been abandoned late in May, while there still was waiting for the effect of the aftermath of the British strike fiasco.

Important jobbers say they want no opening of either

ABERFOYLE MANUFACTURING COMPANY

MERCERIZED YARNS

MAIN OFFICE
BANKERS TRUST BLDG.
PHILADELPHIA

JAMES BUILDING
CHATTANOOGA, TENN.

READING, PA.

ADAMS-FRANKLIN BUILDING
CHICAGO

MILLS
CHESTER, PA.

JOHNSTON BLDG.
CHARLOTTE, N. C.

WESTAWAY BUILDING
HAMILTON, CANADA

Single Yarns Mercerized

Bleached and Dyed on Cones

THE ELMORE COMPANY MERCERIZED YARNS Spindale N.C.

Specializing in Fugitive Shades for Plaiting and Splicing

The ELMORE Co.

Spindale, N. C.

Selling Agents JOHNSTON MILLS COMPANY
Charlotte, New York, Philadelphia, Reading, Chattanooga

nainsooks or knitted underwear before well along in July —not until merchants have gotten rid of stocks of goods which cost them more per dozen than, it is believed, goods for next year will cost. One said his house would give no consideration to the matter before the end of August. It was stated by several, in effect, "We are not worrying over underwear for next year so much as over selling what we have in stock and on contract for this year."

More is to be gained for manufacturer and merchant by holding prices steady for the remainder of the current season than by telling the world what will be the price of underwear in 1927. Premature openings in several recent years worked out unsatisfactorily, according to market reports that were common on every such occasion. With some it is a question whether this year's sales may be safely accepted as indicating the drift for next year as to nainsooks and the knitted, and as between ribs and bal briggans. Low end bals are said to have sold right well this season, while manufacturers of the strictly high grade are, in some instances were last month, in need of orders. Nainsooks are believed to have made further inroads in the field of both bals and ribs. At any rate, they were bought earlier by retailers than the knitted, according to jobbers, and figure more conspicuously in the reorders.

Against the desirability of an early opening of light weights for next season is the common admission that jobbers are giving little attention to heavy weights for fall and winter. It is estimated by conservative buyers that jobbers as a body have not bought for 60 per cent of their practically assured requirements. Buying came to a halt almost the day the cotton crop report indicating a 16,000,000 bale yield came out, and since then has been in large measure suspended. Recurring reports, although lacking confirmation, of shading of prices by manufacturers have not helped matters for mills as a whole, while a few appear to have gotten some business. Some of the Mohawk Valley underwear mills are operating on reduced schedules, and none is credited with having any forward business of great moment. An eleventh hour rush on both light and heavy weight mills seems certain to make the finish of the season more interesting than the middle. The beginning was orderly and, generally, satisfactory to mills.

Sweaters.

With business in sweaters for spring and summer having fallen so far short of expectations, there is diminishing hope among even some of the more optimistic of any very great improvement in the situation for fall and winter. A comparatively few jobbers, it appears, have booked possibly as much as 25 per cent of the business ordinarily taken in the first half of the year. Retailers seem to have bought on a relatively lighter scale, according to manufacturers selling direct.

Novelties have been a pretty nearly all-around sad disappointment. Of course, sales of golf sweaters, and hosiery to match, have been in sufficient volume to keep specialty mills fairly well engaged. A few weeks ago there was believed to be a gathering of interest in the shaker type of coat. The style drift in both men's and women's sweaters, it is stated, is to the V neck slipover.

Knitted sports apparel for women is not so bad an item for the knitted outerwear mills as might be indicated in the failure of the bal briggan skirt to repeat last year's commotion, constituting one of the brighter spots in this division of the knitting industry. A brighter one now is bathing suits. In strong contrast with conditions in the sweater trades, numbers of bathing suit manufacturers were for weeks operating their plants overtime. Deliveries to jobbers and retailers have been of large proportions. It is the belief of market interests generally that if retailers have a bumper bathing suit business they will at once buy sweaters for their fall and winter needs. If, on the other hand, the bathing season be as backward as spring has been, according to the complaints one hears, the same factors fear the bottom will drop out of what remains of the sweater market.

Erwin, Tennessee, a Progressive City.

BY P. G. CLARKE.

Enjoying unusual advantages with regard to transportation, water, power, labor, climate and proximity to raw materials, Erwin, Tennessee, offers a splendid location for textile industries.

Already, there is established at Erwin, the plant of the A. P. Villa and Bros. Silk Mill which produces spun and spooled silk. This plant was opened in August, 1917, and since that time, has been making record productions.

Native labor is employed in all departments of the mill; there are about 125 operatives. The monthly payroll of the company is $6,000. Spindles in operation number 7,692.

Skeined raw silk from China, Japan and Italy is wound, spun and spooled and then transferred to quills and cops. About 20,000 pounds of silk is used per month, the quilled and copped product being sent to mills throughout the country.

Nearby, also, is the great plant of the American-Bemberg Co., rayon manufacturers. The first unit of this tremendous industry is fast nearing completion. This plant will be one of the largest of its kind in the world and will employ 10,000 people.

Erwin is served by the Clinchfield Railroad, now affiliated by lease with the Louisville and Nashville and the Atlantic Coast Line railroads. The Clinchfield crosses and connects the important systems of the Chesapeake and Ohio, the Norfolk and Western, Southern, Seaboard Air Line, Charleston and Western Carolina, Piedmont and Northern and others.

The recent acquisition of the Clinchfield Railroad by the A. C. L. and the L. and N. gives Erwin a through route to Louisville, Cincinnati and Chicago, as well as a direct connection with Detroit, Toledo and Pittsburg and also in a southeasterly direction, with the Atlantic seaboard. Erwin is the location of the Clinchfield Railroad shops, built at a cost of $2,500,000. At Erwin also, are the general offices of the company.

Erwin has an abundance of native white labor, which to a high degree, is adaptable and efficient for all classes of industries, particularly those in the textile field. This labor as a class is thrifty, moral and responsible. Erwin has no labor troubles because local labor is not easily led by any foreign element or swayed by radical views.

Located in the heart of the hydro-electric power development of the southeastern power zone, Erwin and country, are served by the Tennessee Eastern Electric Co. which has a high generating capacity. Water powers have been

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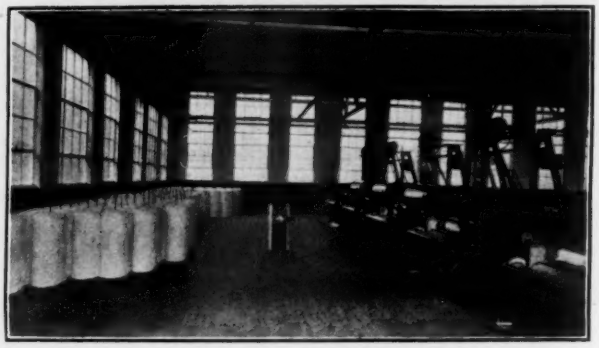

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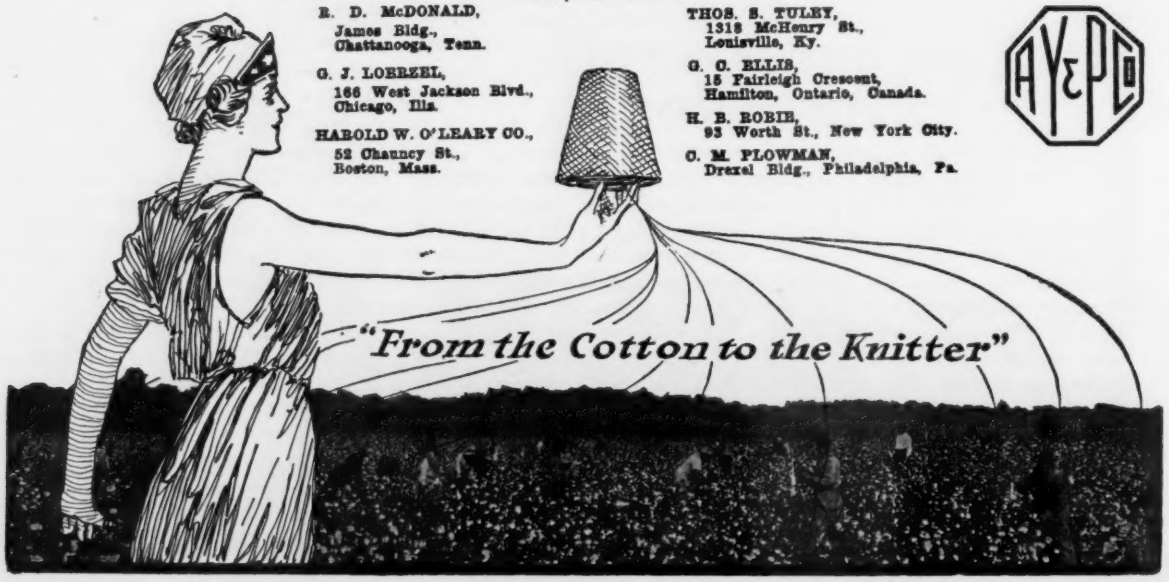

developed to some extent but great possibilities exist in East Tennessee.

The Tennessee river furnishes the outlet for practically all of the waters of this mountain section and becomes a very important navigable stream in eastern Tennessee. The principal tributaries in North Carolina are the Hiwassee, French Broad, Pigeon, Nolichucky, and Watauga rivers. The Clinch, Holston, French Broad, Nolichucky and Little Tennessee are important rivers in eastern Tennessee.

There is an abundance of water well adapted for domestic and industrial purposes in this section. The water of eastern Tennessee is slightly alkaline but not hard. It is not necessary to treat it for either industrial or domestic use.

Erwin is supplied with pure mountain spring water, the source of supply of which is sufficient for a city of 100,000 population. There are also other springs available with a flow of 2,000 gallons per minute. The Nolichucky river has a low water flow of 390 feet per second and Indian Creek, a daily flow of six to eight million gallons of clean pure water.

Climatic conditions are ideal. Erwin's climate is bracing, yet mild, the extremes of heat and cold being unknown. Annual average temperature is 56.2 degrees F. Erwin's altitude is 1662 feet, and it has a population of 6,000.

Those Who Will Work Succeed at Charlotte.

BY DAVID SHAW.

Charlotte and Mecklenburg County have every natural quality and material facility for the development and successful growth of any sort of industrial enterprise. Courteous bankers can provide money from their abundant funds; economical hydro-electric power is plentiful; a large population of American born laborers, free from the poison of bolshevism and anarchy; a tax assessment not burdensome; convenient transportation facilities with reasonable freight rates; a year-round climate that is equable; and strong cooperation of the Chamber of Commeree and all the civic organizations. On the spiritual side, there are scores of churches, standard A-grade woman's college, business college, high schools and graded schools; fraternal orders and social clubs.

Individuals with integrity of character and who will work cannot meet with failure in Charlotte. As examples of what can be done, Charlotte would offer a few exhibits:

The Charlotte Pipe & Foundry Company, Inc., W. F. Dowd, Jr., vice president, active manager, started business 24 years ago on a capital of $20,000 making cast-iron pipe and fittings. One of the chief products emphasized is soil pipe, water tested and inspected. Cast-iron pipe and fittings are made in sizes from 2-inch to 10-inch. In the foundry 150,000 pounds of metal are melted each day. North Carolina, South Carolina, Pacific Coast States, and some few foreign countries are heavy buyers of these goods. Owned and operated from the beginning by Charlotte citizens, the pipe foundry has grown from a hole in the ground with two employees to a site of 45 acres with seven finely equipped buildings in charge of a force of 250 southern men, operated on a capital of $250,000. Hydro-electricity is used by Dowd as power for driving the machinery.

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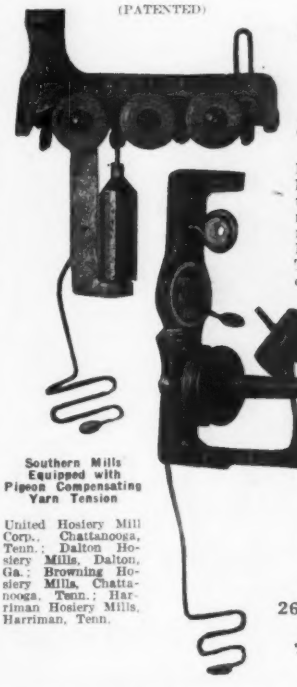

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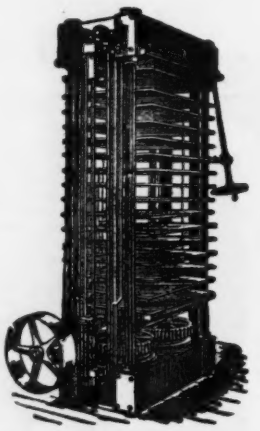

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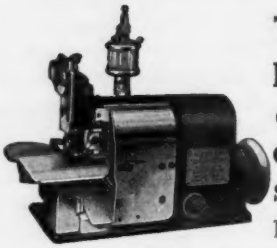

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ly to the making of seed-planters and guano-sowers is the Cole Manufacturing Company. Born 25 years ago in a little wooden building out in a cotton patch, today it covers 13 acres with seven fire-proof plants equipped with machinery of modern type. On an original paid-in capital of $8,750 it is now "carrying on" under a valuation of $500,000 exclusive of patent rights. Cole sells 35,000 implements annually to the South, with Russia, Syria, Africa, South America, Cuba, Porto Rico as big buyers of its planters. E. M. Cole president of the company, a native Tar Heel, as an inventor has averaged one new patent for grain planters for the last quarter of a century. Some of the largest implement manufacturing houses in America are paying royalties on Mr. Cole's patents. Some of the articles made are the Double-Hopper Plain-View Planter that will plant two kinds of seed in the same row on one trip; another plants any sort of grain, peas, beans and peanuts; there is a corn and cotton machine combined in one; eight different styles of guano distributors are produced. Mr. Cole is now developing a combination machine that will plant a hill of corn and one of beans in the same row. He anticipates every demand of agriculture for seed and guano planting devices. Cheap hydro-electric power and loyal laborers of the American type explain the growth of this international enterprise.

The Charlotte Casket Company, manufacturers of funeral supplies, started business in 1899 on a paid-in capital of $35,000. Today its capital and assets are put down at $350,000. The products are sold to leading undertakers all over Dixie. The factory is housed in three brick buildings and a brick warehouse. With a payroll of $65,000 yearly, the employees, native born Americans, are buying homes here through the building and loan associations.

The McClaren Rubber Company, H. L. McClaren, President, was established here in 1917. Two years ago the capital stock was increased to $1,001,632. The estimated yearly production is valued at $3,000,000. Two hundred and seventy-five workers draw combined wages of $350,000 annually. The corporation manufactures several brands of automobile tires and inner tubes. Its featured product is the Autocrat Cord, heavy-duty service tire, sold in nearly every State in the Union. McClaren tire sales in each of the States of North Carolina, Florida and California, average over $300,000 annually, and the enterprise is only in its infancy. McClaren tires and tubes are famous in the Nation for their "cost-less-per-mile" service. They are made in an open daylight factory by born-in-America men thoroughly experienced in tire building. There is little if any detrimental influence by labor agitators or organizations; and labor turnover is practically nil. Hydro-electric power is plentiful in quantity and favorable climatic conditions also are elements that make for economical production. The rubber is imported from Sumatra, Java, Straits Settlements through New York City by boat to Norfolk, Va., thence by rail to Charlotte under cheap freight rates. The recent addition of new calender mill units, tire building machines, tube room improvements, now give to the McClaren factory an increase in production of approximately 65 per cent.

There are 16 banks and three building and loan associations in Charlotte, as follows: Charlotte National, Commercial National, First National, Merchants & Farmers, Union National, American Trust Company, Continental Trust Company, Independence Trust Company. Industrial banks: Charlotte Morris Plan Company, Citizens Saving & Loan Company, City Industrial, Industrial Loan & Investment, Mecklenburg Industrial, Southern Industrial, Turner's Industrial. Building and Loan Associations: Mechanics Perpetual, Mecklenburg and Mutual. The last available report by Scott Charnley & Company, certified public accountants, shows the combined resources of these Charlotte financial institutions at $63,366,851.12. The total resources of the building and loan associations are $11,184,840. In 1925 home builders here borrowed from building and loan banks $10,928,725. Charlotte is noted as the second largest "building and loan city" in the United States. There has never been a B. & L. bank failure here. One of them advises that it has never lost a dollar in its life of 45 years.

The Southern Power Company, established by the late J. B. Duke in 1905, now directed by W. S. Lee, is the chief responsible factor for the waterpower development and industrial growth of the piedmont Carolinas. Today more than 300 cotton mills, with 5,500,000 spindles are being driven by Southern Power Company electricity. It distributes annually more than 1,000,000,000 kw. hours from 11 plants of the generating system. The electrical energy produced by the company is equivalent to more than 2,000,000 tons of coal. And there is no stop in the development of this mighty factor in the progress of North and South Carolina. New building plans are forming. The huge saving that has been effected by consumers of hydro-electric power through the use of cheap electrical energy as compared with the cost of power generated through the use of imported coal in private or individual power plants has served a constructive purpose in stimulating the expansion of textile and other industries in this section.

Textile equipment manufacturers have contributed greatly to Charlotte's growth, a complete line of cotton mill machinery being made. Large plants have brought great bodies of personnel to swell the city's population. These are making money here: Whitin Machinery Company, Textile Mill Supply Company, Southern Spindle & Flyer Company, Grinnell Company, Crompton & Knowles, Parks-Cramer Company, and Saco-Lowell Shops.

Three bonded warehouses make strong claim for Charlotte's supremacy as a cotton storage center of the Southeast. Standard Bonded Warehouse, Sanders-Orr Warehouse and Charlotte Cotton Compress. Reshipment privileges are an attractive feature.

American manufacturers of dyestuffs are represented in Charlotte by the du Pont Works, and the National Aniline and Chemical Company, both of whom are housed in their own buildings.

The Liddell Company, one of the biggest cotton gin factories in the South, has a plant here embracing 6½ acres. In its existence of 47 years it has never had a week in which it did not meet its payroll in full in cash. It builds stationary steam engines, saw mills, cotton presses, power transmission devices. The value of its annual production goes into thousands of dollars.

The Charlotte Wagon & Auto Company designs and manufactures automobile and truck bodies. From a small beginning in 1914, native local workers are signing a payroll of $250,000.

The Moffatt Machinery Company manufactures electric, hydraulic and hand elevators. The annual volume of

business is estimated at a quarter-million dollars, turning loose $50,000 a year in wages.

The Southern Baking Company is capitalized at $20,000,000. This big corporation was born in 1925, a development of the Carolina Baking Company starting here in 1914 on a capital of $15,000. Harry D. Tipton is president, J. W. Shumaker secretary and treasurer, both of New York City.

There are 12 motion picture film exchanges here that handle $4,000,000 annually, with a yearly wage of $425,000 to 250 employees. The postoffice gets $118,000 a year in revenue from this industry.

The Buckeye Cotton Oil Company buys $1,500,000 worth of cottonseed a year and pays off 190 workmen.

The Mecklenburg Dairy Company, established in 1922, provides a ready market at high prices for milk and cream. It is stimulating the dairy industry in this county and putting more money into circulation among the farmers. The Jersey cow is growing in popularity on farms around Charlotte.

Within the environs of Charlotte there are more than 20 textile mills of the major class. Within this city's trading territory there are altogether 300 factories engaged in the manufacture of fabrics and yarns from cotton. Cheap and abundant hydro-electric power, freedom from the turmoil of strikes and labor agitators, in the center of the raw staple, piedmont climate, these mills are swelling the bank deposits of their stockholders.

Several department stores here for men and women are bringing millions of dollars to the city. The $120,000,000 North Carolina invested in hard top roads is bringing Charlotte customers from four states.

An admitted and appreciated influential factor in the development of North Carolina is the Charlotte Observer and the Charlotte News. Each has a field all is own. The constructive work of these papers has led Charlotte from a lazy, provincial town to a city of cosmopolitan parts, vibrant with energy, and alert to its opportunities, a commanding leader in Dixie, revering the traditions of the Old South.

A new method of motor lubrication has been developed by Fairbanks, Morse & Co., of Chicago, to use in connection with their ball-bearing motors. As is well understood in the trade, such motors need to be lubricated but once a year.

With this new method, greases of the proper kind for the work are put up in collapsible tubes, each tube holding just sufficient grease for a motor's annual requirements. Printed instructions accompany each tube for flushing out the old grease with kerosene, after which the fresh grease is squeezed from the tube directly into the bearing. It is claimed for this method that only suitable grease for the work is used; that there is no chance to get grit or dirt into the bearing through the use of an old stick or some other means to transfer grease from an open can to the bearing; and that just the right amount of grease is used to do the best work, this all being applied to the bearing and not wasted by being smeared on the outside of the housing to require careful wiping after the grease is inserted. In other words the claim for the method is economy, convenience, efficiency and cleanliness.

Among the Knitting Mills.

According to report, an underwear knitting mill for Florence, Ala., is practically assured, following the oversubscription of the required stock issue asked by Gardiner & Warring, of Amsterdam, N. Y., who are interested in moving South. President W. M. Richardson, of the Florence Chamber of Commerce, is handling the proposition.

The Davis-Allcott Hosiery Mill plant on Locust Street, Gadsden, Ala., has been dismantled and the machinery moved to a larger new building. The equipment will be extended in the new plant.

The capacity of the Stillwater Knitting Company, Stillwater, N. Y., is being doubled, according to report.

Keva Knitting Mills, Inc., Los Angeles, Cal., has been incorporated by M. M. Pindler, M. G. Wilson and M. L. Licker to operate a knitting mill.

Glove silk underwear is being manufactured by the Super-Weave Glove Silks, Inc., at 96 Spring St., New York City. This is a branch of the Foster & Gifford Silk Mills of Gloversville, N. Y.

A new mill, two story and basement, 100 x 100 feet, will be erected by the Concordia Silk Hosiery Company, Inc., Philadelphia, Pa. The contract has been let.

A new mill is being erected by the Starr Knitting Mills, Inc., at Pleasantville, N. J. The company, now located in Philadelphia, will remove its equipment to the new plant when it is ready for occupancy, and discontinue operations in Philadelphia.

A new brick power plant has been completed at the Valatie Mills Corp., Valatie, N. Y.

Additional floor space totaling 25,000 square feet will be provided in an addition to be built by the Progressive Silk Mfg. Co., Amsterdam, N. Y.

Bethayres Knitting Mills, Bethayres, Pa., have been incorporated for $20,000 by A. J. Carey and others.

Knit Goods Mfg. Co., Jersey City, N. J., have been incorporated to produce knit goods. The capital is $10,000.

Full-Fashioned Hosiery Mills, Reading, Pa., have been incorporated with a capital of $150,000, by J. E. Fehl and associates.

J. M. Crebs, H. F. Monheimer and J. M. Sluder have organized the Carmi Mfg. Co., Inc., Carmi, Ill., to manufacture knitted products. The capital is $100,000.

White Haven Knitting Company, White Haven, Pa., is extending its productive equipment which will, it is intended, increase the production approximately fifty per-cent.

Louis H. Senor, vice-president and treasurer of the United States Rayon Corporation, 40 West 25 Street, New York, has recently spent two months in Europe reviewing the rayon situation.

Conditions in Europe in the rayon industry have greatly changed since December, 1925. Cooperation and price agreements among the various manufacturers have resulted in a lessening of production, combined with an increase in price. This has tended to make the manufacturers more independent regarding the sales of their production, and as present stocks in the United States are being used up—this may result in higher prices on future shipments to the United States.